REPORT

ON THE

HEALTH OF THE CITY

OF

BIRMINGHAM,

FOR THE YEAR 1896;

ALSO,

ON THE PROCEEDINGS TAKEN UNDER THE ACTS FOR THE

PREVENTION OF ADULTERATION

OF FOOD AND DRUGS,

BY

ALFRED HILL, M.D., F.R.S.E., F.I.C.,

Past-President of the Society of Medical Officers of Health; Past-President of the Society of Public Analysts; Late Examiner in Public Health to the University of Aberdeen; Fellow of the Sanitary Institute; Fellow of the College of State Medicine; Fellow of the Incorporated Society of Medical Officers of Health;

MEDICAL OFFICER OF HEALTH AND ANALYST TO THE CITY.

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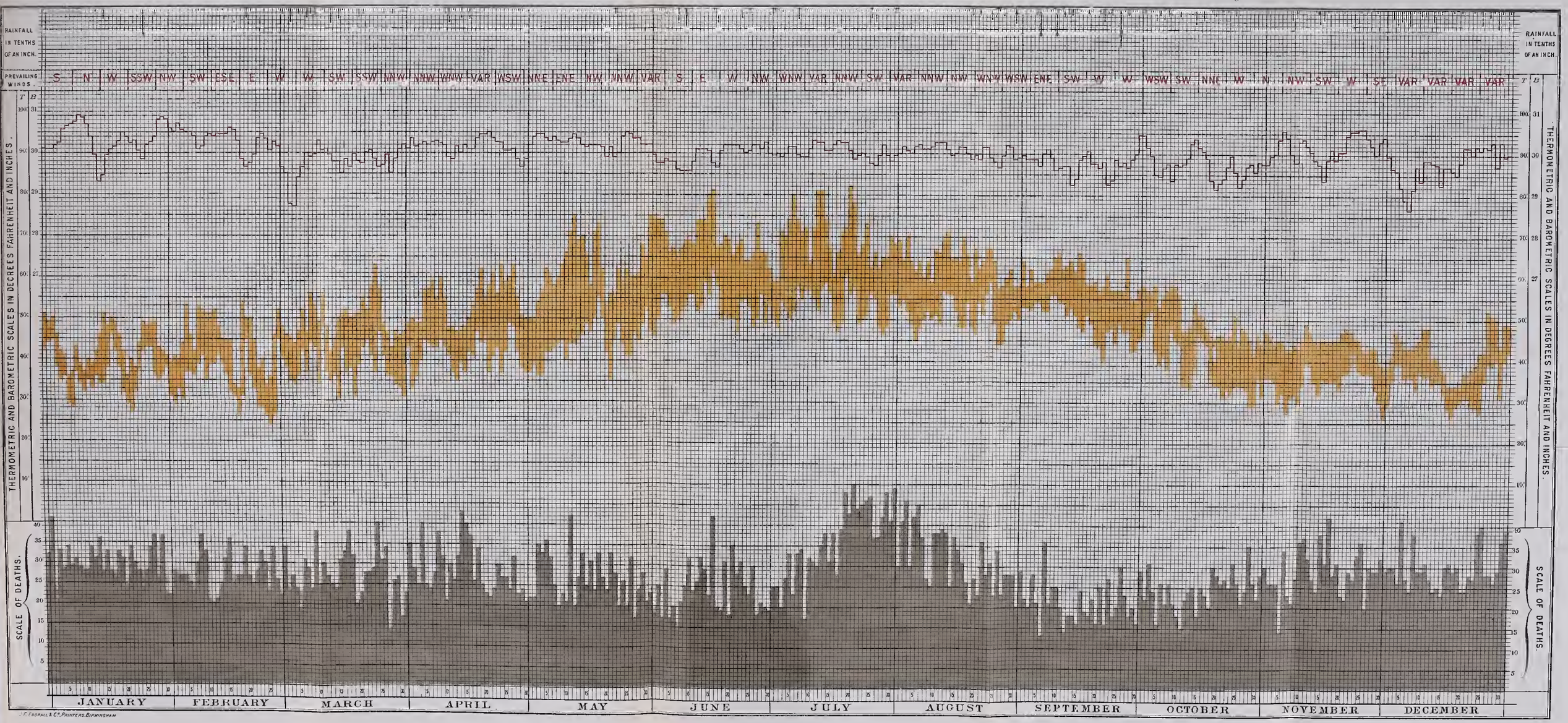
City of Birmingham.

Chart illustrating the relations of the number of deaths, to the principal meteorological conditions on each day, of the year 1896.



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MORTALITY: Deaths | METEOROLOGY: Temperature (maximum and minimum) BAROMETRIC PRESSURE (corrected and reduced to 32° Fahrenheit and sea level) RAINFALL.

With the

Medical Officer of Health's Compliments.

Health Department,

The Council House, Birmingham,

March 20th, 1897.

TO THE HEALTH COMMITTEE.

Mr. Chairman and Gentlemen,

I beg to lay before you my Twenty-fourth Annual Report, as your Medical Officer of Health. It is for the year 1896. Introductory Remarks.

I regret to have to report upon certain conditions and statistics which are somewhat less favourable than usual, one of which is that the total Death-rate exceeded the average for the previous ten years. One always hopes to see the Death-rate in Birmingham improve year by year, and it is disappointing to find it worse in 1896 than it has generally been in recent years. It is unsatisfactory, too, to find that in respect to its total Death-rate the City holds a lower place amongst the great towns than it used to do. These facts call for most serious consideration, and suggest the necessity for increased sanitary effort, in order that the health of the town may improve at least as fast as that of other large centres of population.

It is anything but reassuring to find that the greater part of the increase in last year's mortality was caused by the seven principal Zymotic Diseases, all of which (except Small-pox) were much more fatal than in the five previous years. I would therefore ask your consideration of the further means I have suggested in my Report for combating three of these diseases, viz. : Diphtheria, Measles, and Whooping Cough.

Considerable progress has been made during the year in reducing the number of unhealthy houses in the City. Much has been done, also, to diminish the number of ashpit privies, by the conversion of the worst of them into water-closets. This work I regard with great satisfaction, as I think it must be followed by good results.

Three points now appear to me to be of great importance in any efforts that are to be made for the sanitary welfare of the town. One is the provision of freer circulation of air in

and around dwellings; another is the abolition of intercepting methods of dealing with excreta; and the other, the better cleansing of the yards, passages, and outhouses in the poorer parts of the City. The first of these points can only be met by the demolition of a certain number of houses, where they are too crowded to be healthy. The second point involves the conversion of the privies at present arranged on the conservancy system, into water-closets. The third point should be dealt with by arranging for the cleansing, at the public expense, of all those courts in which this appears necessary to the sanitary staff.

Elevation.

Geological position.

Before proceeding to consider the statistics of the year, I should like to repeat that Birmingham enjoys the advantage of a high situation. Its highest point is 675 feet, and its lowest 281 feet above the mean level of the sea. It also has the advantage of being built upon an undulating site, mostly of a sandy or gravelly nature.

POPULATION.

Population.

The population of the City, estimated by the usual method, was 501,241 at the middle of the year 1896. I am inclined to assume that this estimate is rather too low, as I think the town is growing more rapidly than it did between the last two censuses. The error, however, is probably only a slight one, not large enough to seriously affect the figures given in my Report. The population of the enlarged City in each of the last ten years is shown below :—

	Estimated Population at middle of each year.	Average Number of Persons per acre.
1887	462,251	36·4
1888	466,430	36·7
1889	470,646	37·0
1890	474,900	37·4
1891	479,193	37·7
1892	483,526	38·1
1893	487,897	38·4
1894	492,301	38·7
1895	496,751	39·1
1896	501,241	39·5

MARRIAGES.

Marriage-rate.

The number of Marriages in the City in 1896 was 5,021, equal to a Marriage-rate of 20·0 per 1,000, against 17·9, 17·3, and 16·9 in 1895, 1894, and 1893. This shows a considerable and satisfactory improvement: it is probably due to the good state of trade.

BIRTHS.

The Births recorded in the City during the fifty-three weeks comprised for registration purposes in the year 1896 amounted to 16,582, of which 8,392 were those of males and 8,190 those of females. The Birth-rate was 32·5 per 1,000, against an average of 32·8. The Births and Birth-rates for the past ten years have been as follows :— Birth-rate.

	Number of Births.	Birth-rate per 1,000 persons living.
1887	15,315	33·2
1888	15,076	32·4
1889	15,357	32·7
1890	15,487*	32·1
1891	16,166	33·8
1892	16,026	33·2
1893	15,881	32·6
1894	15,505	31·6
1895	16,014	32·3
1896	16,582*	32·5

*53 weeks.

According to the Registrar General's Annual Summary, the Birth-rate in the thirty-three great towns was 30·7, a much lower figure than in Birmingham. Only eight towns had higher Birth-rates than ours, the highest being 35·8 in Gateshead. Birth-rate in large towns.

DEATHS.

The Deaths registered during 1896 numbered 10,405, and comprised those of 5,354 males and 5,051 females. The Death-rate for the year was 20·4 per 1,000. The following table shows the Deaths and Death-rates for the last ten years :— Death-rate.

	Number of Deaths.	Death-rate per 1,000 Persons living.
1887 ..	9,225 ...	20·0
1888 ...	8,465 ..	18·2
1889 ...	9,035 ...	19·2
1890 . .	10,329* ...	21·4
1891 ...	10,077 ...	21·1
1892 ..	9,642 ...	20·0
1893 ..	10,445 ...	21·5
1894 ...	8,946 ...	18·2
1895 ...	9,863 ...	19·9
1896 ...	10,405* ...	20·4

* 53 weeks.

The Death-rate for 1896 was ·4 per 1,000 above the average for the ten previous years. This, of course, is not a very great increase. I think, however, that the average of 20 per 1,000 is by no means an ideal mortality rate for Birmingham. I therefore feel disappointed to find that last year's Death-rate was above the

Death-rate of Birmingham and large towns compared.

decennial average instead of below it. And this disappointment is all the more keen owing to the fact that the Death-rate in the thirty-three great towns was only 18·9, or 1·5 below that of Birmingham. According to the Registrar General's figures only three towns out of the thirty-three had higher Death-rates than Birmingham, so that last year our City stood thirtieth on the list. It was nineteenth in 1895, twenty-third in 1894, twenty-third in 1893, twentieth in 1892, and seventeenth in 1891. The position of the town was therefore much worse last year than in either of the five previous years.

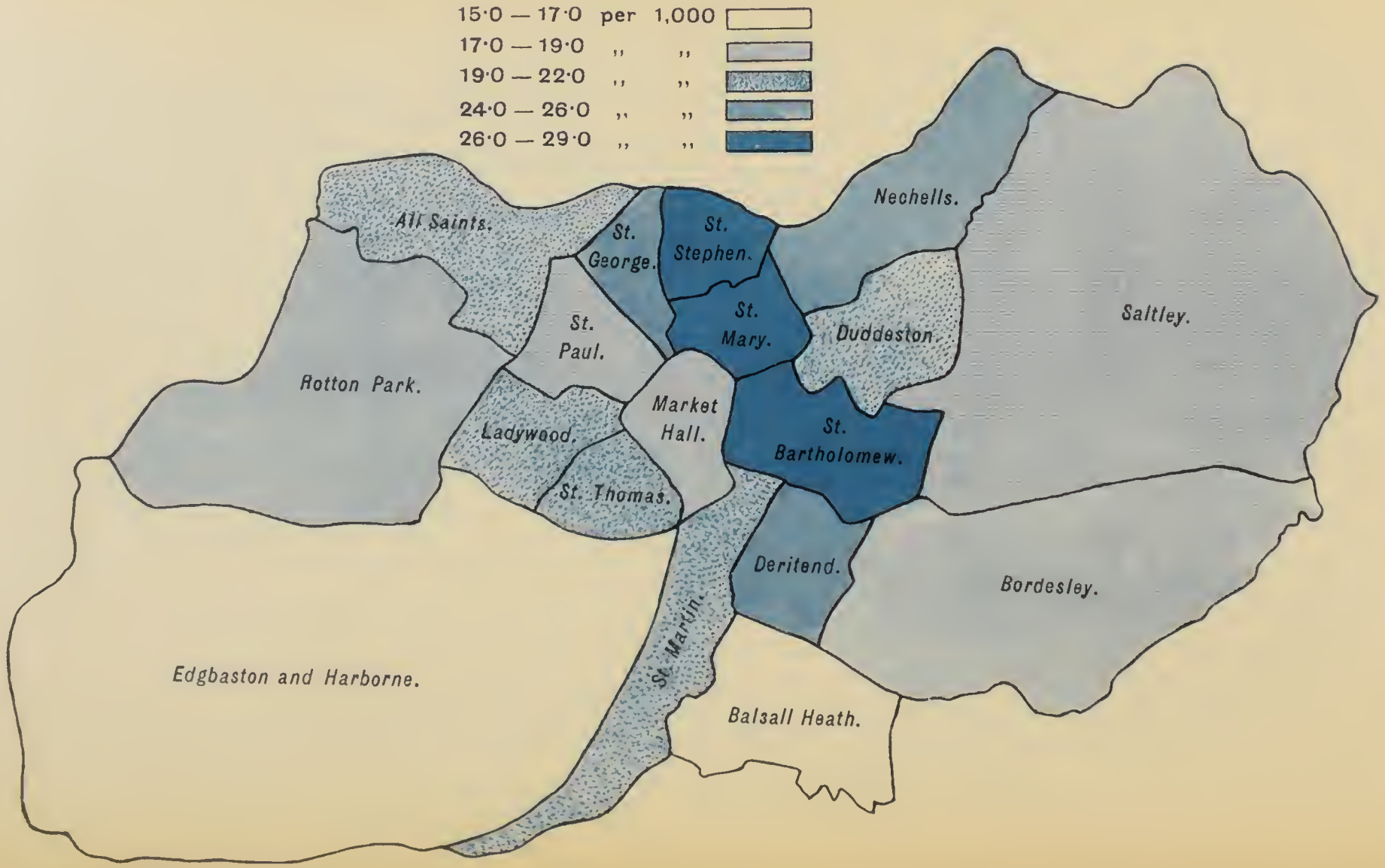
Variations in Mortality.

I have examined the causes of Death during the year, with the object of discovering the cause of the increased mortality, and find that the principal variations from the average were as follows :—

	Deaths in 1896.	Average 1891-1895.	Increase or Decrease.
Diphtheria and Croup	293	114	+179
Enteritis	309	169	+140
Whooping Cough ...	386	260	+126
Measles	310	189	+121
Diarrhœa	589	494	+95
Convulsions	266	193	+73
Scarlet Fever	154	88	+66
Premature Birth ...	384	344	+40
Debility, etc	677	642	+35
Cancer	346	313	+33
Typhoid Fever	108	80	+28
Bronchitis	1,076	1,275	-199
Phthisis and other tubercular diseases ...	952	994	-42
Pneumonia	725	749	-24
Old Age	430	453	-23

Bronchitis was much less common last year than in the five previous years, the deaths being 199 fewer. Pneumonia, the other great scourge of the Respiratory Organs, caused 24 Deaths less than usual. Tubercular diseases, the principal of which is Consumption, caused 42 deaths below the average, and Old Age 23 deaths below the average. These are diseases that depend very largely upon wet and cold weather, and their decreased prevalence points to the fact that the climatic conditions were more favourable to health than usual. Had there been no other influence except the weather at work the Death-rate would have been a very good one. But, unfortunately, the town was visited by a most exceptional prevalence of Zymotic Diseases. Every one of the seven principal Zymotics, except Smallpox, caused a much heavier mortality than usual. Diphtheria, together with Membranous Croup, headed the list with an increase of 179 Deaths. Enteritis, a disease closely akin to Diarrhœa, showed an

DEATH RATE FROM ALL CAUSES IN 1896.



increase of 140. Next came Whooping Cough, with an increase of 126, Measles with one of 121, Diarrhœa with 95, Scarlet Fever with 66, and Typhoid Fever with 28. Convulsions, Premature Birth, Debility, and Cancer all caused an increased mortality, but the increases were not large enough to affect the total Death-rate very seriously; indeed, they were more than counterbalanced by the decrease in Bronchitis alone. It is, therefore, to the greater prevalence of the zymotic diseases that the increase in the Death-rate must be attributed, and I shall devote a large part of my report to a consideration of this very unsatisfactory feature of the year's statistics.

Death-rates in Wards.

I now proceed to consider the distribution of the mortality over the different Wards of the City. Unfortunately, I cannot allot the Deaths in public institutions to the Wards to which the deceased persons really belonged, but I have assumed that these Deaths should be divided amongst the Wards in proportion to the mortality which actually occurred within their boundaries. By this means the following figures are obtained :—

	Estimated Population.	Approximate Death-rate.
St. Mary's	15,620	28·9
St. Stephen's	23,422	27·9
St. Bartholomew's	26,193	26·8
Deritend	26,042	25·5
St. George's	21,437	24·9
Nechells	33,393	24·1
Duddeston	23,458	21·6
St. Martin's	25,098	20·6
Ladywood	26,828	20·5
St. Thomas's	19,297	19·9
All Saints'	39,693	19·2
Market Hall	12,776	18·0
St. Paul's	17,731	18·0
Rotton Park	41,201	17·9
Bordesley	46,329	17·6
Saltley	29,345	17·6
Edgbaston and Harborne ...	29,024	15·6
Balsall Heath	39,631	15·4

Inequality in Ward Death-rates.

The most striking feature in the foregoing statement is the great inequality in death-rates in different parts of the City, the mortality in the worst Ward being almost twice as high as in the best. Taking the nine worst Wards in the list the average Death-rate in them was 24·5 per 1,000, in the nine best Wards it was 17·7. These last nine Wards contain over one-half of the total population of the City. In one-half of the City, therefore, the Death-rate was only 17·7; and it seems reasonable to believe that under equally favourable conditions that of the other half would have been as low.

Causes of unequal Death-rates in Wards.

I do not think, however, that the higher mortality in the first nine Wards is altogether due to inferior sanitary conditions. It is, I believe, due to very complex causes, of which imperfect sanitation is only one. Perhaps an enquiry into the mortality from the more important diseases will give a clue as to what these causes are.

The following is a list of diseases, each of which occasioned more than 200 deaths last year, with the Death-rate from each of them both in the nine most healthy and the nine least healthy Wards, deaths in large Institutions being entirely disregarded. The latter deaths do not affect the figures very greatly. It is probable, however, that a larger percentage of the deaths in Institutions belong to the unhealthy than to the healthy Wards, and in that case the unhealthy Wards are made to appear a little better than they really are :—

	Death-rate in nine healthy Wards.	Death-rate in nine unhealthy Wards.
Diarrhœa	·88	1·50
Enteritis	·40	·84
Whooping Cough	·57	1·00
Debility	1·04	1·67
Convulsions	·40	·68
Premature Birth	·64	·92
Measles	·51	·71
Bronchitis	1·59	2·56
Pneumonia	1·10	1·53
Phthisis	1·30	1·83
Apoplexy, etc.	·51	·66
Heart Disease	1·03	1·18
Old Age	·56	·65
Diphtheria and Croup	·52	·51
Cancer	·56	·50

All the more prominent causes of death except two were more fatal in the unhealthy than in the healthy Wards. The two exceptions were Diphtheria and Cancer. The fact that Diphtheria is worse in the more healthy than in the less healthy parts of the town adds considerably to the mystery which envelops the disease. Old Age, Heart Disease, and Apoplexy were more fatal in the less healthy Wards, but the excess was not very marked, the most important variations being in the first ten diseases in the list. Diarrhœa and its allied complaint Enteritis were almost twice as common as a cause of death in the bad Wards as in the good ones. These are diseases which are affected in a marked degree by the want of proper feeding, of fresh air, and of cleanliness. Whooping Cough also caused almost twice as many deaths in the unhealthy Wards as in the others. This in all probability was due to the want of proper precautions against cold, for Whooping Cough, not a very fatal disease in itself, commonly reaches a fatal

termination through some complication, induced by neglect, affecting the breathing organs. The same may be said of Measles. Debility and Convulsions, diseases confined to young children, are probably due in a large measure to bad feeding. Bronchitis, Pneumonia, and Phthisis are all influenced very largely by the lack of suitable clothing to ensure protection against rain and cold, and also by the want of fresh air, which has been proved to exert a most baneful effect on the organs of respiration.

Sanitation in unhealthy Wards.

A study of the foregoing figures suggests then that the higher mortality in the unhealthy Wards is due to (1) Want of ventilation; (2) Want of cleanliness both inside and outside the house; (3) Improper, unwholesome, or insufficient food; (4) Exposure to the weather. All of these may be said to arise directly or indirectly from poverty. It is poverty which compels the lower classes to live in houses that are damp, devoid of proper ventilation, filthy in the interior, and which have filthy environments; it also causes them to have insufficient or innutritious food, and to be exposed without proper protection to the inclemencies of the weather. With poverty as such the Sanitary Authority is of course not officially concerned, and it cannot take measures to ensure good feeding and proper clothing; but with the provision of fresh air and the removal of filth conditions it is directly concerned.

Need of better ventilation.

I am more and more convinced that the want of good ventilation is of all insanitary conditions the most important. A study of the Ward Death-rates seems to me to show this very clearly. All the Wards in which the highest Death-rates are recorded are in the older parts of the City. They contain a large number of small back-to-back houses in which there is little ventilation, and not much light. Generally speaking, these houses are built in close, confined courts, approached by narrow covered entries. Such houses are to be found in large numbers in St. Mary's, St. Stephen's, St. Bartholomew's, Deritend, and St. George's Wards, the five Wards which have the worst Death-rates. On the other hand, there are very few such courts in Balsall Heath, Edgbaston and Harborne, Saltley, Bordesley, and Rotton Park, the five Wards with the best Death-rates.

The paramount importance of good ventilation is shown by the fact that it appears to outweigh many other insanitary conditions. In Balsall Heath Ward, for instance, there are a large number of ashpit privies, many of them in bad condition, a considerable number of shallow wells, and a large number of houses in which the drain connections are far from satisfactory. Yet in spite of this, the Ward has an exceedingly good Death-rate, 15·4 per 1,000, due, I believe, to the larger space and better ventilation which is found there. Bordesley, again, is largely tenanted by working class people, many of whom are very poor. A great many of the houses are badly built, and

are never in good repair. Most of them, however, have a fair amount of ventilation, and the Ward has a very good Death-rate.

Effects of improved ventilation.

A most striking example of the results of improved ventilation was furnished by some of the streets which were dealt with in carrying out the Corporation Street Improvement Scheme. In these streets the houses were greatly crowded together, and consequently ill-ventilated. A large number of them had to be removed, and those that were left were provided with sufficient ventilation and light, as well as put into better repair. The table below, reproduced from one of my earlier Reports, shows the mortality in certain of these streets before and after the improvements were made :—

	Death-rate, 1873-1875.		Death-rate, 1879-1881.
Lower Priory	62·5	...	21·9
Rope Walk	42·0	...	24·9
Bailey Street	97·0	...	25·6
Potter Street	41·0	...	28·8
Russell Street	55·0	...	19·1
Princip Street	46·0	...	13·2
Aston Road	40·0	...	19·3
Tanter Street	47·0	...	22·0

These figures indicate the surprisingly good results that have been found to follow improved house accommodation. There is no reason to doubt that the same would be the case again if the houses in the less healthy parts of the City could be similarly treated. What is needed is that in crowded districts a certain number of houses should be removed, leaving the remainder with a sufficient amount of air space both at the front and at the back, and thus establishing through ventilation.

Need of greater cleanliness.

With regard to cleanliness, I am strongly of opinion that a great deal more public scavenging of courts, yards, and out-houses is needed. The Inspectors in the course of their work constantly find it necessary to call upon the tenants in the lower class districts to cleanse the yard surface, the drain-traps, the privies, the tub sheds, and the wash-houses in the court in which they live. They then try to arrange for this work to be done by the different tenants in turn. For a time this plan may succeed, but before long one of the tenants refuses to do his portion of the work, and by the time the Inspector visits again the court is in as bad a state as ever. It is the old story, that what is everybody's business is nobody's business. I consider that a number of public seavengers should be engaged, whose duty it should be to thoroughly cleanse the yards and the outhouses in the worst parts of the town at least once a week, and I believe this would be followed by a great improvement in the health of the people living in such properties.

Distribution of Deaths amongst the æta periods.

The ages most affected by the increased mortality are shown in the table below :—

	1896.	1895.	1894.	1893.	1892.
Under 1 year	3,265	2,910	2,539	3,146	2,664
Between 1 and 5 years ...	1,798	1,398	1,441	1,306	1,570
„ 5 „ 15 „ ...	444	391	389	334	375
„ 15 „ 25 „ ...	414	386	426	436	343
„ 25 „ 45 „ ...	1,294	1,287	1,285	1,556	1,289
„ 45 „ 65 „ ...	1,800	1,863	1,561	1,961	1,812
At 65 years and upwards...	1,390	1,628	1,305	1,706	1,589

The principal feature to be noticed in these figures is the heavy mortality in children. At ages above 15 the deaths were fewer than usual, but in infants under 1 year they exceeded the decennial average by over 500, and in children between 1 and 5 years by over 300. This was due to the exceptional prevalence of the seven principal Zymotic Diseases, which mostly affect young children. Out of 1,799 deaths from these diseases no less than 1,478 were amongst children under 5. The infant mortality was at the rate of 197 per 1,000 births—a very high figure—exceeding the average by 25. In the 33 great towns the infant mortality was at the rate of 167 per 1,000, and only two towns were worse in this respect than Birmingham.

Infant Mortality.

Discrepancies between Registrar General's and own figures.

The figures given in my Report which relate to other large towns are taken from the Registrar General's Annual Summary, and will be found in Table V. In that summary the figures respecting Birmingham are a little different from my own. This is because the Registrar General adds to the deaths which take place in the City those of persons belonging to Birmingham who die in Workhouses and Asylums outside its boundary. This would be a good plan if the deaths of non-residents who die in Hospitals in the City were then deducted from the total, but as this cannot be done, I think it well to deal with the deaths which actually take place in Birmingham, and so my figures differ a little from those in the Annual Summary.

INFECTIOUS DISEASES.

Zymotic Death-rate.

The Deaths attributed to the seven principal Zymotic Diseases — Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhœa—numbered 1,799, and were equal to a Death-rate of 3·5 per 1,000. The Zymotic Death-rates for the past 10 years have been as follows :—

	Per 1,000
1887	3·1
1888	2·0
1889	2·7
1890	2·9
1891	2·0
1892	2·6
1893	3·0
1894	2·4
1895	2·6
1896	3·5

The Zymotic Death-rate was higher than in any other year since 1884. The large amount of Zymotic Mortality is very unsatisfactory, and calls for the most careful attention and enquiry.

Zymotic Death-rates in large towns.

According to the Registrar General's Annual Summary, the Zymotic Death-rate in the 33 great towns was 2·9. Only one town had a worse Zymotic rate than Birmingham, viz., Salford, with 4·1.

Smallpox.

Smallpox.

Fourteen cases of Smallpox occurred during the year, 4 of which proved fatal. Nine of the patients were vaccinated, three were unvaccinated, and in two cases it was doubtful whether vaccination had been performed or not. One of the Deaths was in an unvaccinated child four years old, another in an unvaccinated adult, and the remaining two in adults who had been vaccinated as children but not re-vaccinated.

Introduction of Smallpox.

The occurrence of these cases affords a striking example of the folly of allowing communities to please themselves as to whether they enforce the Vaccination Laws or not. In the City of Gloucester vaccination had for some time past been largely neglected, and when Smallpox broke out there it spread, as you will remember, to a most alarming extent. The first three cases which occurred in Birmingham were directly traceable to Gloucester, so that the carelessness shown in Gloucester as to enforcing vaccination endangered the health not only of the people living there, but of those who lived in other places in communication with that city. The first of these three cases was that of a woman who went to Gloucester on March 7th to see her nephew, and found that he was suffering from Smallpox. Eleven days after she was taken ill, and was found to be suffering from the same complaint. The next patient was a boy living on a canal boat belonging to Gloucester, who had a sister suffering from Smallpox. This patient was known to have been exposed to the infection, yet he had never been vaccinated either before or after his sister was taken ill. He died the second day after removal to Hospital. The last of the three cases was that of a young man who had come to Birmingham from Gloucester on business, and who was taken ill eleven days after leaving that City.

Precautions against Smallpox.

By arrangement with the District Council all the Smallpox cases were removed to the Aston Manor Smallpox Hospital. All possible precautions were taken to prevent the spread of the disease, and it is gratifying to find that they were so successful. The last of the fourteen cases occurred on October 24th, and terminated on November 21st; since the latter date the City has been free from Smallpox.

Vaccination.

Vaccination.

I have obtained from the Vaccination Officers returns showing the amount of Vaccination performed during the year which ended on June 30th, 1896. These returns are incorporated in Table XIII.; the figures below have been calculated from them:—

District.	Year.	Percentage of Surviving Children.			
		Successfully Vaccinated.	Insusc'ptible of Vaccination or had Smallpox.	Unaccounted for, from	
				Removal to places unknown; and not having been found.	Postponement by Medical Certificate; Removal to other Vaccination Districts, etc.
Birmingham Parish ...	1892	87·9	0·2	8·6	3·3
	1893	90·2	0·4	6·8	2·6
	1894	90·1	0·4	6·6	2·9
	1895	88·6	0·7	7·1	3 6
	1896	89·2	0·6	6·8	3·4
Aston Union (within the City) ...	1892	81·3	0·5	12·3	5·9
	1893	81·6	0·5	11·3	6·6
	1894	82·4	0·7	11·0	5·9
	1895	78·9	1·0	11·9	8·2
	1896	79·2	0·8	11·6	8·4
King's Norton Union (within the City) ...	1892	83·9	0·4	3·8	11·8
	1893	81·4	0·9	2·9	14·7
	1894	79·6	0·8	6·2	13·4
	1895	76·6	1·0	5·8	16·6
	1896	82·4	1·4	7·0	9·2
Whole City...	1892	84·9	0·3	9·6	5·2
	1893	86·0	0·5	8·1	5·5
	1894	86·0	0·6	8·2	5·2
	1895	83·5	0·9	8·8	6·8
	1896	84·5	0·8	8·7	6·0

Vaccination in various districts.

I am very glad to find that the amount of Vaccination performed last year was distinctly larger than in 1895, and that the increase was not confined to one vaccination district only but was common to all three. It is also pleasing to note the large increase in successful vaccinations in King's Norton district, where the percentage in 1895 had been very low. It will be noticed that a great deal more Vaccination is done in Birmingham Parish than in the two other districts.

Measles.

Measles.

This disease caused 310 Deaths during the year, against an average of 189 in the five years 1891-1895, showing an excess of 121 Deaths. The Death-rate from Measles was 0·6 per 1,000 in Birmingham, and 0·7 per 1,000 in the thirty-three great towns. Measles is a disease which, up to the present time, has not been affected by sanitary improvements. Its

Death-rate in the whole of England is just as high now as it was twenty years ago, when the practical application of sanitary science was much less advanced; and it seems certain that far more definite steps will have to be taken with regard to it before any material reduction in its mortality will take place.

Procedure as to Measles.

At present the only information obtained by this office with regard to Measles is that afforded by the Death returns. That is to say, cases of Measles do not come under the notice of the Health Department, unless and until they prove fatal; and it is then too late to hope to do much to stop the spread of infection. There is, moreover, a vast amount of carelessness on the part of parents as to whether their children catch the disease or not. Many of them think that all children are certain to have an attack some time or other, and the sooner it is over the better. Then, too, they regard the disease so lightly that they do not give the patient nearly so much attention as they should do, and hence many cases prove fatal which, with proper care, would have ended in recovery, the actual cause of death being, in a great number of instances, a chill resulting from exposure.

Proposed action as to Measles.

It seems evident, therefore, that the first step towards mitigating the severity of Measles must be to impress on the public mind the seriousness of the disease, not only to health, but to life. This seriousness is well recognised in the case of Scarlet Fever, largely because stringent measures are enforced by the Sanitary Authority with regard to the latter disease. The fact that Sanitary Authorities, as a rule, practically ignore Measles leads to the very erroneous idea that it is a trivial or unimportant disease. It appears desirable, therefore, that the public should be made to understand—(1) that Measles is a preventable disease, and that there is absolutely no reason for supposing that every child is sure to have it; (2) that it is a very fatal complaint if lightly treated; (3) that it is an infectious disease, and that anyone who fails to isolate a patient suffering from it is guilty of gross misconduct. How, then, can this information be conveyed to the poorer classes of our population?

In the absence of compulsory notification, which I consider to be impracticable, the plan adopted in some other large towns of obtaining the assistance of the School Board Officers, appears to me to be a good one. I would suggest that the School Board be asked to allow the Health Department to obtain from their officers the addresses of all children who are absent from school on account of Measles. Printed instructions should then be sent by post to these addresses, giving simple directions as to the personal treatment of the patient, and the steps to be taken to prevent the spread of the disease. Occasionally a visit should be made by the sanitary Inspector, in order to ascertain if these instructions are being carried out, and in cases of gross neglect of the precautions against infection, summonses should be

issued against the offenders. This course would, I believe, have the effect of enlightening the more ignorant classes with regard to this complaint, and of making it clear that the disease is one which requires careful attention, both to preserve the life of the sufferer and to prevent the spread of infection.

Proposed action as to Whooping Cough.

Exactly the same course of procedure should be taken with regard to Whooping Cough, another disease to which all that I have said about Measles applies. That some definite action ought to be taken seems to me to be quite clear, in view of the fact that in the decennium 1886-1895 the average number of Deaths from the seven principal Zymotic Diseases was as follows :—

Smallpox	26
Measles	237
Scarlet Fever	94
Diphtheria	69
Whooping Cough	257
Typhoid Fever...	71
Diarrhœa	509

These are not figures relating to a single year, but to a period of 10 years, and they may, therefore, be taken as indicating the ordinary mortality from the different diseases. What I want to point out is, that Measles and Whooping Cough have each been causing, and seem likely to still cause, almost as many deaths as Smallpox, Scarlet Fever, Diphtheria, and Typhoid Fever put together. I cannot think it necessary for me to further urge the need for more definite action with regard to Measles and Whooping Cough. I will only add that a plan similar to the one I have suggested has already been put in force in Manchester.

Scarlet Fever.

Scarlet Fever.

At the beginning of last year, when I was preparing my Annual Report for 1895, it appeared as if one of the "crests" which mark the prevalence of Scarlet Fever had just been passed, and I anticipated that the disease would decline during 1896. Unfortunately this anticipation was not realised, for both the cases and the deaths from Scarlet Fever were more numerous last year than they had been in 1895. The Deaths amounted to 154, against an average of 88 in the previous five years, and were equal to a Death-rate of ·30 per 1,000. In the 33 great towns the Scarlet Fever Death-rate was ·22 per 1,000, and five towns had a higher Scarlet Fever Death-rate than Birmingham.

The notified cases of Scarlet Fever reached the very high total of 3,389. In the five years that have elapsed since the extension of the City, they have numbered 1,418, 1,614, 1,788, 2 964, and 3,389 successively. Scarlet Fever was more prevalent last year than in either of the five preceding years, but a little less prevalent that it had been in the old city in 1890.

Reduced case-mortality of Scarlet Fever.

I have already stated that 3,389 cases of Scarlet Fever were notified, and that 151 Deaths were registered. The case-mortality was therefore only 4·5 per cent. The great alteration which has taken place in the malignancy of Scarlet Fever is very interesting. Unfortunately I cannot give the case-mortality in the whole city for any year prior to the adoption of compulsory notification in 1890. I can, however, give the following figures relating to the City Hospital during the four epidemic waves of the disease :—

	Cases.	Deaths.	Case mortality.
1875-78 ...	536	78	14·6 per cent.
1879-83 ...	1,948	207	10·6 ,,
1884-90 ...	6,201	383	6·2 ,,
1891-96 ...	10,661	473	4·4 ,,

Effect of isolation on Scarlet Fever.

These figures show that the case-mortality of Scarlet Fever has fallen in a marked degree in each of the last four epidemics until it is now less than one-third as high as it was twenty years ago. It is to be noted that this reduction in the malignancy of the disease has taken place side by side with an enormously increased amount of hospital isolation. As far as I can judge, the proportion of cases removed to the City Hospital would be less than 10 per cent. in the first epidemic, about 25 per cent. in the second, 70 per cent. in the third, and 85 per cent. in the fourth. Let me put the figures in this way :— 10 per cent. of the cases removed to hospital, case-mortality in the hospital 14·6 per cent. ; 25 per cent. of the cases removed, case-mortality 10·6 per cent. : 70 per cent. of the cases removed, case-mortality 6·2 per cent. ; 85 per cent. removed, case-mortality 4·4 per cent. Thus the larger the proportion of cases removed the smaller has been the case-mortality. As all these statistics relate to patients admitted to the City Hospital, the variations in the case-mortality cannot be set down to any difference in the treatment received, but must be attributed to an alteration in the type of the disease. The figures certainly seem to imply that the removal of the greater part of the cases from their homes to the City Hospital has had the effect of causing subsequent cases to be of a mild type. It seems obvious that when most of the patients are being treated in hospital the amount of infectious material present in the neighbourhood from which they came must be much less than if the patients had remained at home, and it does not seem impossible that when the Scarlet Fever germs are present in only small numbers the illness caused by them will be of a mild type. This suggestion seems to be rendered all the more probable by the fact that in all the four Scarlet Fever epidemics the case-mortality was highest in the year in which the disease was most prevalent, and presumably when the germs were most abundant. On the whole I think there are considerable grounds for supposing that the removal to hospital of a very large proportion of the Scarlet Fever patients has been a cause of the diminished malignancy of the disease, though I have not sufficient evidence to justify

me in forming a very definite opinion on that point. If it should be so, however, it will be yet another strong argument in favour of extensive isolation.

Scarlet Fever in Wards.

The distribution of the Scarlet Fever cases over the wards of the city is shown in the subjoined list, in which the ward which had the largest number of cases in proportion to its population is placed at the top :—

	Scarlet Fever case-rates.
St. George's	10·4 per 1000.
Saltley	9·7 „
Bordesley	9·1 „
Deritend	8·2 „
Balsall Heath	7·5 „
All Saints'	7·2 „
St. Martin's	6·8 „
St. Thomas's	6·5 „
St. Bartholomew's	6·4 „
Nechells	6·0 „
Rotton Park	5·5 „
St. Stephen's	5·5 „
Duddeston	4·7 „
Edgbaston and Harborne	4·7 „
Ladywood	4·4 „
St. Mary's	3·8 „
Market Hall	3·5 „
St. Paul's	3·3 „

The prevalence of Scarlet Fever varied greatly even in wards which are contiguous to each other. Thus St. George's Ward had the highest case-rate, while St. Paul's, which adjoins it, had the lowest. This shows that the infection was not derived from one or two centres only, but was spread broadcast over the whole city. It may, perhaps, be well for me to point out that last year's figures strongly contradict the view that Scarlet Fever is more prevalent in the neighbourhood of the Isolation Hospital than elsewhere.

Scarlet Fever at various ages.

Almost the whole of the Scarlet Fever cases, viz., 3,261 out of 3,389, occurred at ages between 1 and 25 years old. The case mortality at different ages was as follows :—

	Cases.	Deaths.	Case mortality.
1 to 5 years ...	981	100	10·2 per cent.
5 to 15 „ ...	1,927	43	2·2 „
15 to 25 „ ...	353	5	1·4 „

It is very obvious from these figures that the older the patient is when attacked by Scarlet Fever, the better is his chance of recovery. The probability of a fatal issue is nearly five times as great if the patient is between 1 and 5 years old as it is when the attack has been delayed till he is between 5 and 15

years old. It is, therefore, little, if at all, less than criminal to neglect to take every precaution against exposing children to the infection. Yet it is not uncommon to hear the remark that all the children in a family may just as well have the disease at the same time and save further trouble. Anyone who wilfully allows a child to have an attack of Scarlet Fever, which might have been delayed and perhaps altogether avoided, most certainly imperils that child's life.

Precautions against spread of Scarlet Fever.

In all the cases of Scarlet Fever efforts were made to obtain the removal of the patient to the City Hospital, unless there was very good means of isolation at home. Generally speaking, there was little difficulty about this, and last year 2,812 cases, or 83 per cent. of the total number notified, were removed. After the removal of the patient, or after the termination of the case if it was treated at home, the rooms which seemed likely to have been infected were fumigated by the inspector with sulphurous acid, and notice was then served on the landlord to strip and limewash the walls, cleanse the painted surfaces, and remove any sanitary defects that had been discovered. All clothes and other textile goods that had been exposed to infection were sent to the station in Bacchus Road for disinfection. Including a small number from Smallpox houses there were 30,488 articles disinfected during the year. They comprised 3,093 beds, 758 mattresses, 2,168 counterpanes, 2,905 blankets, 2,441 sheets, 1,655 bolsters, 4,531 pillows, 327 carpets, 11,273 garments, and 1,337 miscellaneous articles. If any children in the house were attending school they were ordered to stay at home for a fortnight after disinfection had been carried out, and a circular was sent to the school giving information of the case.

HOSPITAL ACCOMMODATION.

Extension of Scarlet Fever Hospital.

I am indebted to Dr. Millard, Medical Superintendent, for the following description of the alterations which have been made at the City Hospital in Lodge Road.

"Some extensive building operations, lasting over two years, have now been completed at this Hospital, and have resulted in such important additions to the old buildings as almost to constitute a new Hospital.

The new buildings comprise :—

1. Two double-storied pavilions, each containing four large wards.
2. An isolation pavilion, containing eight small wards.
3. Administrative block, with quarters for the staff.
4. Steam laundry, boiler-house, &c.

"1. Each of the new pavilions consists of two stories, identical in arrangement and detail ; and being self-contained as regards its offices, each story can if desired be worked quite separately. Access to the upper story is gained by a fire-proof staircase, terminating below in the open air, and thus effectually preventing any aërial communication between the two stories.

Extension of Scarlet Fever Hospital—*continued.*

"The ground plan consists of two wards separated by the nurses' "duty room" and a capacious entrance hall. The bath rooms, water-closets, and slop-sinks are placed in turrets at the ends of the wards, whilst the pantries, linen stores, coal closets, &c., together with an additional bath room, are placed in an *annexe* opposite the middle of the pavilion. This also contains the entrance and staircase.

"The flooring of the wards consists of oak blocks laid on cement concrete, that of the offices, passages, and entrance hall being of mosaic. The walls are faced with Portland cement, with a dado of enamelled bricks five feet high, all corners and angles being rounded to facilitate cleaning. Each ward is heated by two double down-draught ventilating stoves, and the offices and halls by steam radiators. The lighting is by the incandescent gas light.

"Each ward measures 63 by 27 by 12 feet, and accommodates from 12 to 16 patients according as it is used for acute or convalescent cases.

"2. The isolation pavilion is also a double-storied building, and is composed of two halves facing in opposite directions, after the Local Government Board model. Each half consists of two floors, connected by an outside iron staircase, and each floor comprises a suite of two small wards (to contain one or two beds each) separated by a nurses' duty room with water-closet and slop-sink in a detached turret, and a movable bath on the verandah outside.

"3. The administrative block is situated next the entrance gate and faces the road. Besides the kitchens, steward's and matron's stores, offices, and dispensary, it contains quarters for the entire staff, there being 100 bedrooms, besides dining, sitting, and recreation rooms.

"4. The laundry block comprises a commodious steam laundry, fitted with modern labour-saving appliances, the washing for the staff and for the patients being carried on in separate rooms, but with a common ironing and drying room. This block also contains the boiler house, engine room, and engineer's shop, and a small "destructor" for cremating infectious or offensive rubbish.

"The old buildings, to replace which the last two blocks described have been built, are now being pulled down, and upon the ground thus made available a further new building is about to be erected. This will contain a waiting room for visitors, a suite of "discharging" rooms, a "receiving" room, and a small bacteriological laboratory.

"Special attention has been paid to the drainage, which has been designed and carried out on the most approved principles.

"There are no corridors between the various buildings, communication being by means of macadamised roads and footpaths. A footbridge is now being built over the canal separating the Lodge Road Hospital from the branch institution (formerly the Smallpox Hospital) in Western Road. When this is completed the two Hospitals will be worked as one institution, and together they will provide accommodation for 400 cases."

I need hardly say that by the building of the new Hospital at Little Bromwich and the important alterations at the old Hospital in Lodge Road the provision for the isolation of cases of Smallpox and Scarlet Fever has been vastly improved, and the accommodation provided by your Committee is now far superior to what it had been at any previous period.

Diphtheria.

Diphtheria Death-rate.

The history of the year in respect of Diphtheria has again been very remarkable and most perplexing. In 1893 and 1894 the Diphtheria Death-rate fell to the two lowest points on record. In the following year, 1895, it rose to the highest point it had ever reached. Last year it was half as high again as it had been in 1895, the deaths numbering 246, and giving a Death-rate of ·48 per 1,000.

History of Diphtheria in Birmingham.

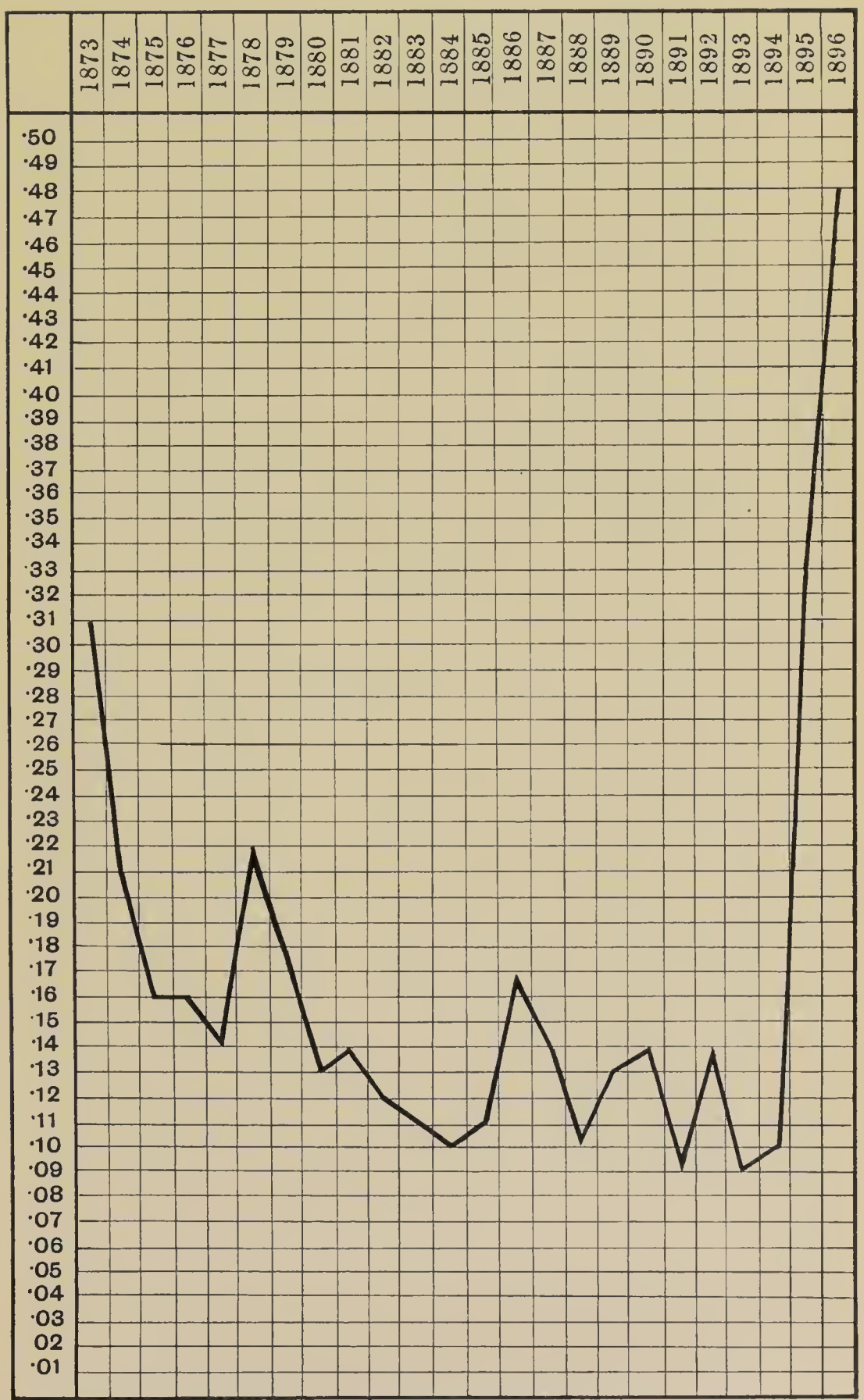
The chart on the opposite page shows the Death-rate from Diphtheria for each year since my appointment as your medical officer. The most striking point in it is the fact that during 1895 and 1896 Birmingham suffered from a most sudden and severe epidemic of the disease. It is to be noticed that 1893 and 1894 had been two of the very best years in regard to Diphtheria; while 1895 and 1896 were absolutely the two worst. This shows the suddenness of the epidemic as well as its severity. The same points are shown by the annual number of cases notified in the last five years, viz.: 456, 322, 316, 640, and 1,100 successively. In considering the Diphtheria statistics we are, therefore, face to face with a most perplexing problem, and one on which it is hard at present to throw any light.

Cause of increase in Diphtheria.

If the increased prevalence of the disease had come on gradually it might have been supposed to be due to some change in the sanitary condition of the town. But Birmingham was in almost the same sanitary state in 1896 as in 1894; yet 1896 was the worst year on record, and 1894 the best. It seems, therefore, almost useless to look to dampness of dwellings, dampness of soil, bad drainage, defective sewerage, or any other insanitary conditions to account for the epidemic. They may, perhaps, probably they do, affect the endemic prevalence of the disease, but they cannot in any way account for the sudden increase since the beginning of 1895.

DEATH RATES FROM DIPHTHERIA

PER 1000 PERSONS LIVING.



J.F. Eborall & Co. Printers, Birmingham.

A general glance at the chart seems almost to suggest that 1873, or some previous year not given, and 1896 are two crests of a wave of Diphtheria extending over a period of 24 years or longer. It is to be noticed that after 1873 a very sudden fall in the Death-rate occurred; then came a long period marked by comparatively slight oscillation, and finally a very sudden rise again. This is in every respect a similar course to that of an epidemic wave of one of the other infectious diseases. We are quite aware that Smallpox becomes epidemic at intervals of 10 years, and Scarlet Fever at intervals of 5 to 8 years. It seems probable that Diphtheria is subject to similar fluctuations, with a much longer interval; in other words, that it becomes epidemic about every 25 years or longer.

Local incidence of Diphtheria.

Although local insanitary conditions will not account for the sudden outbreak of Diphtheria in 1895 and 1896 it is probable that they do affect the local prevalence of the disease, and an enquiry into the distribution of the cases over the various wards of the City will therefore be of interest. In making that enquiry I shall include the cases of Membranous Croup, which is practically the same disease as Diphtheria. My records will not allow me to adopt this course with regard to any but the last seven years, and all the figures already used apply to Diphtheria only.

Diphtheria in Wards.

I have calculated the number of cases of Diphtheria and Croup per 1,000 of the population of each ward, and have arranged the wards in order and marked the position of each ward in 1895 and 1894, as well as 1896, calling the best ward No. 1 and the worst No. 18.

Diphtheria and Croup.

	Case-rate per 1,000.	Position of Wards in		
	1896.	1896.	1895.	1894.
Ladywood	3·5	18	16	17
All Saints'	3·4	16	18	17
Saltley	3·4	16	14	3
St. Paul's	3·2	15	17	16
Rotton Park	3·0	14	15	7
Nechells	2·6	13	9	8
St. George's	2·5	11	11	15
St. Stephen's	2·5	11	10	12
Bordesley	2·3	10	1	3
St. Thomas's	2·2	9	6	11
Balsall Heath	2·0	8	5	8
Deritend	1·8	7	1	12
St. Bartholomew's ...	1·6	6	6	8
Edgbaston and Harborne...	1·5	5	12	2
St. Mary's	1·4	3	12	14
Duddeston	1·4	3	6	3
St. Martin's	1·3	2	3	1
Market Hall	0·7	1	4	3

It is seen that the prevalence of Diphtheria and Croup varied very greatly in the different Wards, the cases numbering 0·7 per 1,000 in Market Hall, and 3·5 per 1,000 in Ladywood. The figures in the last three columns in the table are, I think, very interesting. In some instances the position of a Ward has varied greatly from year to year, in the case of St. Mary's and Edgbaston and Harborne for example. These variations were probably due to some special local outbreak. Thus the unusual prevalence of Diphtheria in Edgbaston and Harborne in 1895 was due to an outbreak at Harborne Board School. Disregarding these accidental variations, however, the disease has for the last three years at least shown a decided preference for certain Wards, notably for Ladywood, which has been 16th, 17th and 18th in the list; All Saints' which has also been 16th, 17th and 18th, and St. Paul's, which has been 15th, 16th and 17th. Amongst the other Wards which have been consistently bad are Rotton Park, St. George's, and St. Stephen's. It will be observed that the various Wards named are all in the same vicinity, and it appears, therefore, that the north-west portion of the City is the part where Diphtheria is most prevalent. I do not at present feel in a position to offer any definite opinion as to the reason for this, but I shall of course continue to pay particular attention to any facts coming to my knowledge which may seem to throw light upon the question. Certain considerations may, however, be brought forward at once.

The first point is that these six Wards vary greatly in their general healthiness. The first four of them viz., Ladywood, All Saints', St. Paul's, and Rotton Park are always amongst the Wards that have rather low Death-rates, while the other two, viz., St. George's and St. Stephen's, are noted for their high mortality. This shows that the extensive prevalence of Diphtheria is not dependent upon those conditions which produce general unhealthiness. I mentioned this very curious feature in my last Annual Report, and pointed out that West Ham, which is now the seventh largest town in England, had a Diphtheria Death-rate of ·77 per 1,000, against only ·35 in the 33 great towns, while its general Death-rate was only 17·9 against 20·7.

Further, I see no reason for supposing that the conditions which have been thought to affect Diphtheria are more common in the north-west part of the town than elsewhere. I do not think the houses there are damper, or that the soil around them is fouler; and I see no reason for supposing there are more emanations from the drains and sewers there than in some other parts of the City. It has been suggested that the provision of water-closets and their connection with the sewers is often followed by an outbreak of Diphtheria. I cannot see any grounds for such a notion. In the six Wards where Diphtheria is specially prevalent there were in 1894 about 2,500 ashpit-privies, 13,500 pan-privies, and 11,500 water-closets, making a total of 27,500. The water-closets therefore constituted about

42 per cent. of the total privy accommodation. In the whole City there were 11,500 ashpit-privies, 33,000 pan-privies, and 37,000 water-closets, so that the water-closets formed rather more than 45 per cent. of the total accommodation. Thus the Wards which suffer most from Diphtheria have a smaller proportion of water-closets in them than the town as a whole, and it can hardly be supposed, therefore, that water-closets favour the presence of Diphtheria.

Diphtheria and new sewerage.

It has also been suggested that the laying of new sewers and connecting house drains to them is a cause of Diphtheria. In order to test this supposition I have obtained from Mr. Price, City Surveyor, a list of the new sewers which have been constructed during the last three years. From that list it appears that, during the period mentioned, sewerage work has been practically confined to four Wards—viz., Saltley (3,600 yards), Bordesley (3,100 yards), Edgbaston and Harborne (700 yards), Rotton Park (550 yards). In no other ward did the length of new sewers amount to 250 yards. The three Wards in which Diphtheria has been most consistently prevalent—viz., Ladywood, All Saints', and St. Paul's, had only 90 yards of new sewers in them, so that sewerage work could not have caused the severe visitation of the disease there. In Saltley, where the largest amount of new sewerage has been carried out, the Diphtheria figures were very bad in 1896, rather bad in 1895, but very good in 1894. Bordesley Ward, where almost as much sewerage has been done as in Saltley, escaped very lightly; in 1895 it had less Diphtheria than any other Ward. These facts seem to show conclusively that the local prevalence of Diphtheria has not been connected with the provision of new sewers.

Diphtheria and School Attendance.

I have continued the enquiry made in 1895 as to the influence of school attendance upon Diphtheria, and find that in 1896 there were 981 houses invaded by Diphtheria or Croup. In 319 cases there were no children at all going from them to school, and in 329 others the patient did not attend school, leaving only 333 patients who did so attend. The schools they went to numbered no less than 100, so that on an average there were only three cases per school during the year. Moreover, only 69 of the patients attended a school where there had been a case of Diphtheria within a fortnight, so that in 69 cases only, out of 981, was there any reasonable probability that the disease was caught at school. This entirely bears out the conclusion I came to in 1895: that with the precautions that are taken in Birmingham there is practically no spread of Diphtheria through schools.

Diphtheria at different ages.

Of the 1,194 cases of Diphtheria and Croup, only 31 were in infants under one year old. There were 355 amongst children between 1 and 5 years old, 318 in those between 5 and 10, and 120 in those between 10 and 15. Between 15 and 25 years there were 183 cases, between 25 and 45 years 157 cases, and in persons over 45 years there were 30 cases. These figures show that the bulk of the cases

occurred amongst children between 1 and 10 years old. The actual incidence of the cases per 1,000 of the population, and the fatality of the disease at different age-periods is shown below :—

	Estimated Population.	No. of cases.	Case-rate per 1,000.	No. of deaths.	Fatality per cent.
Under 1 year ...	13,400	31	2·3	21	68
1—5 years ...	48,000	355	7·4	169	48
5–10 „ ...	59,200	318	5·4	82	26
10–15 „ ...	58,200	120	2·1	14	12
15–25 „ ...	102,100	183	1·8	3	2
25–45 „ ...	137,000	157	1·1	2	
45–65 „ ...	66,700	25	0·4	2	
At 65 and upwards	16,700	5	—	0	

Diphtheria and young children.

It appears that children between 1 and 5 years old are by far the most liable to take Diphtheria, and next to them are children between 5 and 10. After the tenth year has been passed the liability to the disease becomes much smaller. It is therefore very desirable that young children should be most rigorously guarded against exposure to infection, as they are so much more likely to catch the disease than older people.

This point becomes still more important when the Case-mortality is considered, for amongst infants under one year old no less than 68 per cent. of the patients died, amongst children between one and five years old the fatality was 48 per cent., amongst those between five and ten it was 26 per cent., and amongst those between ten and fifteen it was 12 per cent. ; while in persons over fifteen it was only 2 per cent. Thus the older the patient was the greater was his protection from a fatal termination of his attack. Taking all the patients under fifteen years, no less than 35 per cent. died against 2 per cent. of the patients over fifteen. Children under fifteen are, therefore, not only considerably more likely to catch Diphtheria than older persons, but when they take it the probability of their dying is 17 times as great as that of persons over fifteen.

Precautions against spread of Diphtheria.

The action taken last year with regard to Diphtheria was as follows. On receipt of a notification certificate a detailed inspection of the house at which the case occurred was made, and steps were taken to remedy any sanitary defects found there. The names of any children attending school were taken, and the Head Teacher was requested not to allow them to return to school until a medical certificate of freedom from danger was submitted. Inquiry was made as to any known cases at school, or amongst the patients' acquaintances, or in the immediate neighbourhood of the house. After the termination of the case the rooms occupied by the patient were fumigated.

Carelessness as to Diphtheria.

There appears to be a vast amount of carelessness and ignorance as to the infectious nature of Diphtheria. Let me give an example. On November 27th a case occurred at a front house in Long Acre, which proved fatal. About three weeks afterwards a case was notified at a neighbouring house, and on investigation it appeared that the children in this second house had all been taken to see the dead body of the first patient.

In many instances, moreover, the patients' relatives have not been informed of the nature of the illness when the Inspector calls, and of course are taking no precautions whatever.

Diphtheria and bacteriological examinations.

I quite concur in the opinion recently expressed by the Medical Profession in Birmingham, that it is desirable to have at command a laboratory for making bacteriological examinations in supposed cases of Diphtheria. The fact that the Case-mortality in Birmingham last year was only 22 per cent. renders it probable that a considerable number of the cases notified were not true Diphtheria. I also agree with the view that anti-toxin serum should be much more widely used in the treatment of the disease, as judging from the results obtained by qualified and experienced persons in all parts of the world, I believe its use would greatly reduce the Case-mortality. I am also strongly of opinion that a Public Hospital should be available for Diphtheria cases, as it is practically impossible to isolate efficiently any case of so infectious a disease as Diphtheria in a small house, of say, three rooms, used on an average by four persons besides the patient. Last year the 1,194 cases of Diphtheria and Croup occurred in 980 houses, so that in all probability about 200 cases were due to personal contact with another patient in the same house, and might have been prevented by removal of the first patient to hospital. Diphtheria, moreover, is so severe a disease, that to combat it successfully the very best appliances, as well as the medical and surgical skill necessary to use them, should always be at hand. This is not possible except in a hospital.

Diphtheria and anti-toxin.

Diphtheria and Hospital accommodation.

Whooping Cough.

Whooping Cough.

The Deaths from Whooping Cough numbered 386, and exceeded the quinquennial average by 126. Whooping Cough caused considerably more deaths than Measles or Diphtheria, more than twice as many as Scarlet Fever, and nearly four times as many as Typhoid Fever. All that is done by the Health Department with respect to the disease is this. As soon as information reaches this office through the Registrar that a death has occurred, the Inspector makes an examination of the house and leaves some disinfectant to be used about the premises. This is all that is done when a Death occurs, and no action whatever is taken with regard to cases which do not end fatally. In view of the large Mortality from this disease, I think it most desirable that greater efforts should be made to check its ravages, and I suggest that the steps I have advised with respect to Measles should also be carried out in regard to Whooping Cough.

Typhoid Fever.

Typhoid Fever.

The cases and Deaths from Typhoid Fever during the last five years have been as follows :—

	Cases notified.	Deaths registered.
1892	260 ...	39
1893	489 ...	94
1894	511 ...	105
1895	436 ...	82
1896	483 ...	108

Typhoid Fever in Wards.

Last year the Typhoid Fever Deaths exceeded the quinquennial average by 28. The cases were distributed over the eighteen wards as shown below :—

Nechells	1·7	per 1000
St. Stephen's	1·5	,,
St. George's	1·4	,,
Saltley	1·2	,,
Deritend	1·2	,,
Balsall Heath	1·1	,,
St. Mary's	1·1	,,
Ladywood	0·9	,,
St. Martin's	0·9	,,
Duddeston	0·8	,,
All Saints'	0·8	,,
Market Hall	0·8	,,
St. Bartholomew's	0·8	,,
Rotton Park	0·7	,,
Bordesley	0·6	,,
St. Thomas's	0·6	,,
Edgbaston and Harborne	0·6	,,
St. Paul's	0·5	,,

All the houses in which cases of Typhoid Fever occurred, were made the subject of special inspections, and steps were taken to remedy any sanitary defects found in connection with them.

Simple Continued Fever.

Fever Death-rates.

There were only two Deaths from Simple Continued Fever, and none from Typhus Fever, so that the Deaths under the heading "Fever" numbered 110. The Fever Death-rates for the past ten years have been as follows :—

Death-rate from Fever per 1,000 persons living.

1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
·18	·15	·10	·14	·17	·08	·21	·22	·17	·22

The Fever Death-rate for 1896 was just equal to the highest rate recorded in the past ten years.

Diarrhœa.

Diarrhœa

Enteritis.

The deaths attributed to Diarrhœa during the year numbered 589, and exceeded the quinquennial average by 95. There were, however, 309 deaths from Enteritis, or 140 above the average, and these should, I think, be taken into account in estimating the Diarrhœal Mortality for the year. Thus, 898 Deaths were set down to Diarrhœal diseases, a very formidable total. This is a terrible Death-roll, representing one-twelfth of the Mortality from all causes. During the last five years Diarrhœa and Enteritis have caused no less than 3,319 Deaths, so that the average Mortality from them is very high and demands most serious attention. The greater part of the deaths last year occurred as usual in the third or summer quarter, and as Epidemic Diarrhœa is practically confined to the hot weather period, I shall use the figures for the summer quarter only in what I have to say respecting it.

The Deaths from Diarrhœa and Enteritis during the third quarter of 1896 numbered 637. They were very unevenly distributed over the wards of the City, as shown below:— Diarrhœa in Wards.

	Death-rate from Diarrhœa and Enteritis, per 1,000.	Total Death-rate per 1,000.
St. Mary's	11·3	33·8
Deritend	9·5	30·6
St. Stephen's	8·7	29·0
Nechells	7·7	29·7
St. Bartholomew's	7·3	29·4
St. George's	6·9	23·9
St. Thomas's	6·2	17·8
St. Martin's	5·9	24·2
All Saints'	4·9	18·6
Duddeston	4·8	21·8
Ladywood	4·5	20·8
Saltley	3·5	18·7
St. Paul's	3·2	17·9
Market Hall	3·1	17·7
Edgbaston and Harborne	2·8	13·9
Rotton Park	2·8	17·6
Balsall Heath	2·4	16·2
Bordesley	2·4	18·9

I have put the Death-rates from all causes by the side of those from Diarrhœal diseases, in order to show that as the total Death-rate goes up so does the Diarrhœal Death-rate, but the latter increases at a much more rapid pace. I gather from the figures that the conditions which produce a high Diarrhœal Death-rate also produce a high general Death-rate, but that they are much more active in regard to the former than to the latter.

It is generally recognised that bad feeding and maternal neglect of infants, cause a large part of the Diarrhœal Mortality. Unfortunately a Sanitary Authority cannot do much to prevent this. In Birmingham, handbills and posters giving instructions as to the precautions to be taken to prevent Diarrhœa are issued every year, and it is to be hoped do something to lessen the Mortality which is caused in this way. The temperature of the air and soil also has a marked effect, though apparently only an indirect one. But the point that most concerns a Health Authority is that density of population, density of buildings, want of ventilation and light, want of cleanliness, foul emanations from drains, sewers, ashpits, or any other accumulations of filth, are intimately associated with a heavy Diarrhœal Mortality. From my observations I think that by far the most important of these is the density of buildings, leading as it does to want of ventilation and light. The table of Death-rates certainly bears out this view. The wards at the bottom of the list, viz., Bordesley, Balsall Heath, Rotton Park, and Edgbaston and Harborne, are undoubtedly those on which there is most space around the houses, while St. Mary's, Deritend, and St. Stephen's are amongst those on which there is least. I believe that the abolition of the very unhealthy back to back houses, which exist in large numbers in the older parts of the city, would greatly reduce the Mortality from Diarrhœal affections, and to a less extent from general diseases also. Causes of Diarrhœa.

Table of Deaths Registered in the City of Birmingham during the Year ending January 2nd, 1897.

1896.	AGES.							WARDS.																		
	0—1	1—5	5—15	15—25	25—45	45—65	65 and up.	Rotton Park.	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's	St. Mary's.	St. Bartholomew's.	Market Hall	St. Thomas's	St. Martin's.	Edgbaston & Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells.	Balsall Heath	Sattley.	Institutions.	City.
ALL CAUSES	3265	1798	444	414	1294	1800	1390	638	660	478	276	464	567	391	609	200	334	447	393	575	705	439	699	528	448	1554	10405
I.—Specific Febrile or Zymotic Diseases.																											
1.—Miasmatic Diseases.																											
Small-pox	..	1	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4
Measles	71	224	14	..	1	..	..	31	19	9	6	22	44	14	26	3	30	12	16	13	18	4	13	5	13	12	310
Scarlet Fever	4	100	43	5	2	..	..	4	1	1	..	..	3	2	4	..	2	1	2	1	2	..	3	6	3	119	154
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough	168	204	14	..	..	..	..	33	28	20	11	18	37	24	26	5	5	15	7	26	27	17	39	31	11	6	386
Diphtheria	14	139	86	3	2	2	..	9	32	10	6	7	7	4	14	1	4	7	5	9	38	12	19	14	18	30	246
Membranous Croup	7	30	10	..	..	..	..	2	4	5	1	1	2	3	3	1	1	1	1	2	4	4	2	1	2	7	47
Simple Continued, or Ill-defined Fever	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2
Enteric or Typhoid Fever	1	10	13	39	38	7	..	3	2	8	3	7	5	3	3	1	2	4	4	6	8	4	13	12	5	15	108
Influenza	7	3	1	1	10	12	7	13	2	2	..	..	..	..	4	1	..	2	2	1	4	2	1	5	2	..	41
Other Miasmatic Diseases	3	2	2	..	..	1	..	1	..	1	..	..	1	..	..	..	1	1	1	..	..	..	..	..	..	2	8
2.—Diarrhœal Diseases.																											
Simple Cholera	12	2	.	..	..	1	..	..	..	..	..	1	2	2	..	..	1	..	..	1	..	2	5	..	1	..	15
Diarrhœa, Dysentery	463	65	3	1	2	11	29	37	48	19	12	28	37	19	48	13	30	33	19	56	36	26	54	21	25	13	574
3.—Malarial Diseases.																											
Remittent Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4.—Zoogenous Diseases																											
Cowpox and effects of Vaccination	1	..	..	..	..	.	..	..	..	..	..	..	..	..	1	.	..	..	..	..	..	..	..	..	..	..	1
Other Diseases (*e.g.*, Hydrophobia, Glanders, Splenic Fever)	..	..	..	.	..	..	.	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5.—Venereal Diseases.																											
Syphilis	28	3	1	..	5	3	1	2	5	5	3	..	2	1	3	1	2	1	..	1	1	1	2	1	1	9	41
Gonorrhœa, Stricture of Urethra	..	..	..	..	1	8	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	11
6.—Septic Diseases.																											
Erysipelas	10	..	..	2	2	4	3	2	1	1	..	..	2	..	1	4	1	1	1	2	1	1	..	1	1	1	21
Pyæmia, Septicæmia	..	1	..	1	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5
Puerperal Fever	..	..	..	5	16	..	..	..	3	..		..	2	..	5	..	..	3	..	3	1	..	..	1	1	2	21
II.—Parasitic Diseases.																											
Thrush, and other Vegetable Parasitic Diseases		..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	1	..	..	..	..	1	..	..	5
Worms, Hydatids, and other Animal Parasitic Diseases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*	*k*	*l*	*m*	*n*	*o*	*p*	*q*	*r*	*s*	*t*	*u*	*v*	*w*	*x*	*y*	*z*	

III.—Dietic Diseases.	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	*
Want of Breast Milk, Starvation	7	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	3	..	..	1	1	..	2	9
Scurvy	..	..	..	1	23	31	2	2	2	3	1	..	3	2	2	4	1	5	4	4	3	3	1	2	1	14	57
Chronic Alcoholism, Delirium Tremens	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
IV.—Constitutional Diseases.																											
Rheumatic Fever, Rheumatism of the Heart	1	..	10	13	11	9	1	4	3	3	..	1	1	1	1	1	3	2	1	1	1	8	4	3	2	5	45
Rheumatism	..	..	3	3	3	2	6	2	..	..	..	..	..	2	2	..	..	..	..	1	1	1	..	..	..	8	17
Gout	..	..	..	..	1	6	6	2	1	..	..	..	..	1	3	1	..	1	..	1	1	..	1	1	..	..	13
Rickets	6	7	2	..	..	..	..	1	..	..	1	..	..	1	..	..	..	2	1	..	1	1	2	1	..	4	15
Cancer, Malignant Disease	..	1	..	2	42	208	93	27	23	21	13	6	18	5	9	8	8	7	21	20	23	11	14	17	14	81	346
Tabes Mesenterica	41	17	2	1	..	..	..	9	7	6	3	5	5	1	2	..	1	..	..	1	5	2	6	1	5	2	61
Tubercular Meningitis, Acute Hydrocephalus	25	38	10	2	1	..	..	8	5	6	..	1	2	1	1	2	2	3	1	7	9	2	7	6	3	10	76
Phthisis	5	12	18	114	342	184	19	29	39	44	11	38	31	22	47	13	18	28	31	35	50	20	37	44	18	139	694
Other forms of Tuberculosis, Scrofula	35	38	19	10	14	4	1	10	5	9	3	2	1	2	8	3	3	4	4	5	6	4	10	2	2	38	121
Purpura, Hæmorrhagic Diathesis	1	2	..	2	..	2	..	1	..	1	1	..	..	1	..	..	..	..	1	..	..	..	..	1	..	1	7
Anæmia, Chlorosis, Leucocythæmia	1	1	3	6	5	7	..	1	..	1	2	1	..	..	..	..	1	..	1	2	3	2	..	1	2	6	23
Glycosuria, Diabetes Mellitus	..	..	1	3	12	10	7	..	..	2	1	..	1	2	..	..	1	2	1	2	4	1	1	3	1	11	33
Other Constitutional Diseases	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
V.—Developmental Diseases.																											
Premature Birth	384	..	..	..	..	..	..	29	37	21	15	23	15	19	28	4	10	22	13	18	38	26	31	17	13	5	384
Atelectasis	21	..	..	..	..	..	..	2	1	..	..	4	1	1	1	..	2	..	..	2	3	..	1	..	3	..	21
Congenital Malformations	34	3	..	1	..	..	..	6	5	2	..	..	3	..	2	1	..	2	1	2	4	1	..	..	2	7	38
Old Age	..	..	..	..	..	28	402	25	19	20	12	18	12	9	18	7	11	14	23	18	22	13	22	13	21	133	430
VI.—Local Diseases.																											
1.—Diseases of Nervous System.																											
Inflammation of Brain or Membranes	45	63	14	5	21	13	6	11	9	9	4	5	7	10	6	4	6	6	5	6	12	10	14	11	8	24	167
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis	..	..	1	..	38	149	137	18	27	18	9	13	15	15	13	5	9	15	20	23	24	14	21	18	9	39	325
Insanity, General Paralysis of the Insane	..	2	..	..	24	11	14	..	1	..	..	2	..	1	..	..	2	..	..	2	1	1	1	3	1	36	51
Epilepsy	..	1	1	9	21	12	3	..	2	..	1	1	2	2	4	..	1	1	..	1	3	1	1	1	4	22	47
Convulsions	207	54	4	..	1	..	..	16	15	13	9	18	17	10	23	2	14	13	6	20	24	18	18	10	15	5	266
Laryngismus Stridulus (Spasm of Glottis)	6	2	..	..	..	..	..	1	..	..	..	..	2	1	..	1	..	..	1	..	.	..	..	1	1	..	8
Disease of Spinal Cord, Paraplegia, Paralysis Agitans	1	1	2	..	10	17	15	2	1	4	..	4	..	1	1	..	3	2	2	1	4	2	1	1	1	16	46
Other Diseases of Nervous System	9	7	5	12	25	15	6	4	3	1	1	..	1	2	1	..	2	1	6	1	5	2	3	5	1	40	79
2.—Diseases of Organs of Special Sense. (*e.g.*, of Ear, Eye, and Nose).	6	5	7	5	3	..	..	..	1	..	..	..	..	2	1	5	..	..	1	1	2	..	..	4	..	9	26
3.—Diseases of Circulatory System.																											
Pericarditis	..	1	2	1	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	3	6
Acute Endocarditis	1	1	2	2	6	3	2	1	1	1	..	..	..	1	..	..	1	..	1	1	2	..	..	..	..	8	17
Valvular Diseases of Heart	1	2	15	15	32	58	22	4	13	7	6	8	3	7	2	8	6	6	8	2	10	5	4	5	5	36	145
Other Diseases of Heart	17	2	11	25	87	206	112	24	32	25	20	20	15	22	17	14	14	23	21	30	40	28	32	25	20	38	460
Aneurism	..	..	..	..	5	10	1	..	1	1	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	11	16
Embolism, Thrombosis	..	1	..	..	3	6	7	..	3	1	..	1	1	..	..	..	..	..	..	2	..	..	1	..	1	7	17
Other Diseases of Blood Vessels	..	.	..	..	1	3	6	..	..	..	..	..	1	..	..	..	..	..	..	..	3	..	1	2	..	3	10

TABLE OF DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE QUARTER ENDING JANUARY 2ND, 1897—(*continued.*)

1896.	AGES.							WARDS.																							CITY.
	0—1	1—5	5—15	15—25	25—45	45—65	65 and up.	Rotton Park	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's.	St. Mary's.	St. Bartholomew's.	Market Hall.	St. Thomas's.	St. Martin's.	Edgbaston & Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells	Balsall Heath	Saltley.	Institutions.					
Local Diseases—*continued.*																															
4.—DISEASES OF RESPIRATORY SYSTEM.																															
Laryngitis	4	9	5	..	1	1	1	..	1	1	..	..	..	..	3	1	4	1	1	2	4	..	..	1	..	2	21				
Croup	2	16	1	..	..	..	..	1	1	..	..	1	1	..	..	..	2	1	1	2	1	3	4	1	..	..	19				
Emphysema, Asthma	..	..	1	1	4	11	3	1	4	1	1	1	1	..	1	..	..	1	..	..	1	1	3	..	1	3	20				
Bronchitis	310	192	6	8	74	228	258	51	66	33	36	69	86	41	83	16	35	59	50	60	77	51	86	53	53	71	1076				
Pneumonia	123	279	20	25	95	134	49	48	48	46	19	34	48	15	43	11	30	32	23	46	41	39	37	38	45	82	725				
Pleurisy	..	4	3	4	10	13	3	4	4	2	..	..	2	1	3	1	..	..	4	1	1	1	1	..	2	10	37				
Other Diseases of Respiratory System	27	17	2	4	12	16	13	6	13	6	4	9	1	2	6	3	..	3	1	6	6	1	2	5	12	5	91				
5.—DISEASES OF DIGESTIVE SYSTEM.																															
Dentition	55	41	..	..	..	..	..	13	4	3	3	1	6	3	4	..	..	4	3	9	6	3	19	8	7	..	96				
Sore Throat, Quinsy	2	5	2	..	..	..	..	1	..	..	..	..	..	1	..	..	1	1	1	..	1	..	2	..	1	..	9				
Diseases of Stomach	66	8	5	5	11	23	5	3	9	..	3	5	7	1	8	5	1	14	4	15	13	7	10	6	5	7	123				
Enteritis	232	38	6	8	11	10	4	17	19	19	7	24	25	35	22	4	10	9	12	22	13	10	19	16	12	14	309				
Obstructive Diseases of Intestines	12	2	2	5	6	13	5	3	1	..	..	2	..	1	3	..	2	1	1	1	1	..	..	3	..	16	35				
Hernia	..	2	..	2	6	11	10	..	1	..	..	..	1	2	1	..	2	..	2	..	1	..	2	1	..	..	18	31			
Peritonitis	6	3	4	8	13	7	4	6	2	1	6	4	2	5	4	1	..	1	1	2	2	..	1	3	..	4	45				
Ascites	..	.	..	..	1	1	..	1	..	..	..	..	1	..	.	..	.	..	..	..	..	..	..	..	..	..	2				
Cirrhosis of Liver	..	..	1	2	26	42	9	3	4	9	3	4	3	3	3	1	1	3	3	3	2	4	9	9	5	8	80				
Jaundice, and other Diseases of Liver	11	3	..	..	9	22	15	7	6	6	2	2	5	..	1	5	2	1	2	..	5	2	1	7	3	3	66				
Other Diseases of Digestive System	13	5	2	2	6	8	2	5	3	..	..	1	..	1	3	3	2	1	2	1	2	..	..	2	..	12	38				
6 & 7.—DISEASES OF LYMPHATIC SYSTEM AND OF DUCTLESS GLANDS.																															
Diseases of Lymphatic System	2	1	..	..	.	2	1	1	1	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	1	6				
Diseases of Spleen	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	2				
Bronchocele, Addison's Disease	..	..	..	2	3	2	..	1	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	3	7				
8.—DISEASES OF URINARY SYSTEM.																															
Acute Nephritis	2	1	5	3	8	14	4	1	2	1	2	3	..	..	2	..	1	..	2	2	2	3	3	1	2	10	37				
Bright's Disease, Albuminuria	1	2	4	7	29	58	30	13	4	4	4	4	3	3	6	1	4	5	5	8	3	7	6	.	4	47	131				
Disease of Bladder or of Prostate	..	..	1	2	2	9	17	2	..	1	..	..	..	..	1	..	..	1	1	..	..	..	2	1	..	22	31				
Other Diseases of the Urinary System	1	2	1	1	13	11	2	..	2	..	2	..	2	1	..	2	..	4	2	1	3	..	1	1	..	10	31				
9.—DISEASES OF REPRODUCTIVE SYSTEM. (A) Of Organs of Generation.																															
Male Organs	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	3				
Female Organs	..	.	..	..	15	6	..	..	1	1	1	1	..	..	..	5	..	..	..	1	..	..	1	1	..	9	21				
	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*	*k*	*l*	*m*	*n*	*o*	*p*	*q*	*r*	*s*	*t*	*u*	*v*	*w*	*x*	*y*	*z*	•				

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	*
(B) Of Parturition.																											
Abortion, Miscarriage	..	..	..	2	6	..	..	3	..	..	..	.	..	..	..	..	..	..	..	..	..	1	1	..	2	1	8
Puerperal Convulsions	..	..	..	..	3	1	..	1	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..	4
Placenta Prævia, Flooding	..	..	..	1	6	..	..	..	..	1	..	1	..	..	..	..	..	1	1	..	1	..	..	..	2	..	7
Other Accidents of Child-birth	..	..	..	6	25	..	..	1	3	1	2	..	..	1	4	..	..	1	2	2	7	1	4	1	..	1	31
10.—Diseases of Bones and Joints.																											
Caries, Necrosis	1	2	6	2	..	2	1	..	..	..	..	1	1	1	1	..	..	..	..	..	1	1	..	..	1	7	14
Arthritis, Ostitis, Periostitis	..	4	2	..	..	2	..	..	..	..	..	1	..	..	..	1	1	1	..	..	1	..	..	..	..	3	8
Other Diseases of Bones and Joints	3	1	2	5	3	3	..	2	..	1	..	..	..	..	..	..	..	1	.	..	2	..	1	..	..	10	17
11.—Diseases of Integumentary System.																											
Carbuncle, Phlegmon	.	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	1	4
Other Diseases of Integumentary System	16	1	..	..	3	7	13	1	3	2	1	..	1	..	8	1	1	2	2	1	2	2	1	2	2	8	40
VII.—Deaths from Violence.																											
1.—Accident or Negligence.																											
Fractures and Contusions	2	7	12	5	19	32	15	7	1	2	..	4	1	2	2	2	..	1	2	1	4	4	4	1	3	51	92
Gunshot Wounds	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Cut, Stab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Burn, Scald	3	45	13	2	5	6	5	..	..	..	..	..	1	..	..	..	..	2	..	1	1	1	..	3	..	70	79
Poison	1	..	..	2	3	3	..	1	..	1	..	..	1	1	1	..	..	..	..	..	1	..	..	1	..	2	9
Drowning	..	..	3	..	1	7	1	2	..	..	..	..	..	..	2	1	..	..	..	..	2	..	..	1	4	..	12
Suffocation	54	4	1	..	4	1	1	7	1	3	1	5	3	4	10	1	..	2	3	4	3	6	4	3	2	3	65
Otherwise	10	3	1	..	4	1	2	5	1	2	..	1	..	..	..	..	..	1	..	2	..	1	..	2	1	5	21
2.—Homicide.																											
Manslaughter	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	2	5
Murder	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2
3.—Suicide.																											
Gunshot Wounds	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	3
Cut, Stab	..	..	..	..	3	6	2	1	..	2	..	..	1	..	..	..	..	..	..	2	..	..	..	2	..	3	11
Poison	..	..	..	1	5	2	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	5	8
Drowning	..	..	..	1	3	1	..	2	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	5
Hanging	..	..	..	..	..	5	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2	1	..	5
Otherwise	..	..	1	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	4
4.—Execution.																											
Hanging	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
VIII.—Deaths from Ill-defined and not Specified Causes.																											
Dropsy	1	..	..	1	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	4
Debility, Atrophy, Inanition, Marasmus	622	50	1	1	2	1	..	36	45	20	17	25	49	41	46	16	35	40	22	36	32	32	82	44	38	21	677
Mortification	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tumour	..	..	..	..	2	4	..	..	1	..	..	..	..	..	1	..	..	..	2	..	1	1	..	..	..	..	6
Abscess	3	1	..	..	1	2	..	..	1	..	..	..	.	..	2	..	..	..	..	1	2	..	..	1	..	..	7
Hæmorrhage	2	..	..	..	3	2	1	..	..	1	1	1	..	1	..	..	..	1	2	..	..	..	..	..	1	..	8
Causes Ill-defined or not Specified	39	3	7	..	15	18	1	4	3	3	4	4	9	9	5	..	2	7	2	3	9	3	6	8	2	..	83

METEOROLOGY AND MORTALITY.

Temperature and Mortality.

The mean temperature for 1896 was a little above the average for the nine years 1887-1895, being 48·0, against 47·2. The first seven months of the year were all of them warm, as will be seen from the table on the opposite page. In some of them the temperature was greatly in excess of the average, notably in January, March, and June. Such warm weather had a marked effect on certain of the diseases which are most affected by cold. Thus, Bronchitis caused only 550 deaths in the first half of 1896, against an average of 812 in the same portion of the five previous years; Pneumonia caused 398 deaths against 460; Phthisis 326 against 400; and Old Age 214 against 264.

Temperature and Diarrhœa.

Unfortunately the warm weather experienced in the first seven months of the year, while having a very good effect in some directions, was very detrimental in others, for it resulted in an exceptional mortality from Diarrhœa in the third quarter of the year. During the thirteen weeks of the second quarter the deaths from Diarrhœa had averaged less than four per week, and in the first two weeks of the third quarter the numbers were only 13 and 16, as will be seen from the table below. In the next three weeks an enormous increase took place, the deaths numbering 48, 86, and 94. Then an equally rapid fall set in, the figures for the next five weeks being 66, 41, 32, 23, and 13. Thus what might be called the epidemic period lasted only about six weeks, yet in that short time no less than 367 lives were lost.

I need scarcely say that a high temperature is held to be the chief exciting cause of summer Diarrhœa, the most recent theory being that the disease is due to a micro-organism residing in the superficial layers of the earth, and dependent for its vital manifestations upon the presence of organic matter, which is its food, and upon the temperature of the earth's crust, which forms its habitat. As bearing on this theory, I point out below the connection between the temperature of the ground four feet below the surface and the prevalence of Diarrhœa during the well-defined outbreak which occurred in July and August.

Weeks ending	Maximum Temperature of air.	Maximum Temperature of ground.	Deaths from Diarrhœa.
June 20	81·0	53·0	4
" 27	73·2	53·2	11
July 4	71·5	53·2	13
" 11	79·6	54·0	16
" 18	81·2	55·1	48
" 25	81·7	55·9	86
Aug. 1	69·9	56·0	94
" 8	70·0	55·7	66
" 15	70·6	55·3	41
" 22	69·8	55·6	32
" 29	67·3	55·2	23
Sept. 5	63·6	55·0	13
" 12	65·8	54·8	15
" 19	65·6	54·9	8

It will be seen that the highest Diarrhœal mortality occurred in the week ending August 1st, the week in which the highest temperature of the ground was reached, and that the rise and fall in the deaths from Diarrhœa coincided in point of time with the rise and fall in the ground temperature. It is to be noted, too, that the greatest prevalence of Diarrhœa was not contemporary with the highest temperature of the air. The highest readings of the air thermometer occurred in the first six weeks given in the table, when they averaged 78°, while in the next six they averaged only 68°. Yet the Diarrhœal deaths in the first six weeks numbered 178, and in the next six weeks 269. Thus, the greatest prevalence of Diarrhœa occurred when the ground temperature was at its highest, and not the air temperature. Last year's experience, therefore, certainly strengthens the view that the temperature of the ground chiefly determines the amount of Diarrhœal mortality. It must, however, be borne in mind that the records for 1895 were far from supporting this hypothesis, for the maximum temperature of the ground occurred six weeks after the highest Diarrhœal mortality had been recorded. It does not, therefore, seem at all certain that the temperature of the ground is always the only, or even the chief, factor in the production of those conditions which occasion a heavy mortality from Diarrhœa.

The following table shows the mean temperature and total rainfall for each month of the year:—

MONTHS.	TEMPERATURE.			RAINFALL.		
	Mean Temperature in Degrees and Parts.	Average for 9 years, 1887–1895 inclusive	Above or below the average.	Rainfall for Month in Inches and Parts.	Average for 9 years, 1887–1895 inclusive.	Above or below the average.
January	39°9	35°8	+ 4°1	1·15	1·79	— 0·64
February.....	39·1	36·7	+ 2·4	0·56	1·10	— 0·54
March	43·5	39·9	+ 3·6	2·68	1·49	+ 1·19
April	47·6	44·7	+ 2·9	1·33	1·64	— 0·31
May	52·9	51·4	+ 1·5	0·21	2·11	— 1·90
June	60·7	57·5	+ 3·2	1·91	1·84	+ 0·07
July.....	61·1	58·9	+ 2·2	1·25	2·54	— 1·29
August	56·8	58·7	— 1·9	1·74	2·97	— 1·23
September	54·4	55·3	— 0·9	4·34	1·71	+ 2·63
October	43·3	46·7	— 3·4	2·50	2·68	— 0·18
November	38·9	42·9	— 4·0	1·26	2·46	— 1·20
December	38·1	37·4	+ 0·7	3·34	4·65	— 1·31
Year	48·0	47·2	+ 0·8	22·27	26·98	— 4·71

Meteorology, Deaths, and Mortality from certain Prevalent Diseases for each Week of 1896.

Week.		Temperature of the Air.			Temperature of the Ground.		Hours of Sunshine.	Horizontal Movement of Air in Miles.	Mean Humidity, complete Saturation = 100.	Rainfall in inches and parts.	Deaths at				Deaths from									
Number.	Date of Ending.	Highest during week.	Lowest during week.	Mean Temperature.	1 foot deep.	4 feet deep.					All Ages.	Under 1 year.	1 to 5 years.	Over 65.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.
	1896.	°	°	°	°	°																	
1	Jan. 4	53·7	35·5	45·3	43·1	45·1	0·4	1633	92	0·325	221	55	59	31	...	22	3	9	7	1	1	15	51
2	„ 11	43·2	28·0	35·9	40·1	45·3	0·0	1588	86	0·020	211	60	58	22	...	26	1	5	3	1	2	9	39
3	„ 18	50·8	33·4	42·3	40·8	45·0	6·8	2710	82	0·320	223	49	53	34	...	23	3	5	9	1	5	17	50
4	„ 25	49·5	27·2	37·8	39·5	44·8	13·0	1502	86	0·690	189	42	52	19	...	17	3	12	6	5	1	9	43
5	Feb. 1	49·0	31·4	40·8	41·6	44·7	5·8	1538	86	0·120	211	50	41	38	...	14	5	4	7	1	2	18	53
6	„ 8	52·9	28·6	39·3	39·9	44·4	13·8	1925	91	0·035	193	41	43	35	...	13	3	5	9	3	1	17	35
7	„ 15	52·0	35·1	43·6	42·4	44·4	22·2	1892	87	0·145	173	45	36	23	...	11	4	4	9	2	2	7	29
8	„ 22	53·8	26·0	38·0	40·8	44·5	15·2	1596	90	0·340	205	60	41	30	...	16	3	3	8	3	...	11	37
9	„ 29	51·7	24·4	36·3	38·6	44·3	17·7	2062	...	0·045	190	53	48	24	...	12	2	8	4	1	1	16	43
10	Mar. 7	51·8	34·0	42·1	41·7	44·0	16·9	3444	80	1·025	193	52	36	22	...	10	3	2	6	2	7	10	47
11	„ 14	56·0	34·1	44·0	44·1	44·5	6·7	2197	92	0·645	192	59	45	21	...	12	2	9	14	2	2	11	39
12	„ 21	55·0	29·8	43·6	42·5	44·8	23·4	2146	85	0·745	210	54	43	31	...	15	2	6	6	1	1	12	35
13	„ 28	63·5	36·0	45·9	45·4	45·1	30·9	2243	82	0·260	208	52	52	21	...	12	3	4	11	4	3	17	36
14	April 4	49·6	31·0	41·8	42·6	45·4	16·0	2093	81	0·045	174	59	40	9	1	10	2	3	14	1	4	9	30
15	„ 11	60·0	41·2	49·1	46·3	45·4	20·2	2339	79	0·445	200	56	53	25	...	8	5	4	12	2	2	10	33
16	„ 18	57·2	35·4	44·7	44·6	45·9	16·5	2054	82	0·605	243	63	49	34	1	15	7	5	17	2	7	18	43
17	„ 25	62·9	37·0	50·2	47·8	46·2	34·4	1495	76	0·000	180	50	42	29	...	10	5	4	11	...	1	3	34
18	May 2	63·3	36·8	47·8	48·0	47·0	27·7	2222	71	0·250	171	50	34	20	1	1	2	4	9	1	2	16	44
19	„ 9	63·2	36·2	49·2	48·0	47·1	38·5	2057	75	0·000	212	43	43	32	...	...	5	4	13	3	4	20	37
20	„ 16	74·8	39·9	55·5	51·9	47·9	55·2	1608	70	0·000	183	55	46	22	...	1	4	2	20	1	1	12	35
21	„ 23	73·1	35·4	53·9	52·3	48·9	27·0	2396	75	0·215	210	57	39	33	1	4	2	3	11	2	3	16	49
22	„ 30	67·9	41·0	53·2	52·8	49·3	27·7	1916	66	0·000	173	58	36	19	...	3	2	3	11	1	1	8	31
23	June 6	75·4	46·2	61·3	57·9	50·2	50·2	1241	65	0·160	157	46	32	23	...	1	4	6	16	4	3	14	25
24	„ 13	74·3	50·0	60·4	56·8	51·3	28·2	1683	77	0·775	144	44	20	13	...	...	2	5	...	2	4	14	21
25	„ 20	81·0	50·2	63·8	61·4	52·4	59·0	1826	70	0·400	202	57	44	23	...	2	4	12	8	2	4	11	28
26	„ 27	73·2	46·8	58·1	57·2	53·1	16·0	1495	77	0·395	191	73	26	23	...	3	3	3	10	...	11	12	23
27	July 4	71·5	48·0	57·9	56·4	53·1	24·7	2488	78	0·385	150	60	27	12	...	2	2	4	5	1	13	6	29
28	„ 11	79·6	50·4	62·3	59·3	53·5	42·7	1629	77	0·350	201	85	28	29	...	...	1	3	14	...	16	13	22
29	„ 18	81·2	47·5	61·8	61·8	54·6	33·9	1347	67	0·000	220	107	32	15	...	2	2	1	7	...	48	13	28
30	„ 25	81·7	49·4	63·0	62·5	55·5	32·2	1833	69	0·265	325	159	48	26	...	1	1	8	12	4	86	20	38
31	Aug. 1	69·9	45·8	59·1	58·7	55·8	27·7	1623	69	0·460	286	166	33	21	...	4	...	3	12	2	94	13	26
32	„ 8	70·0	45·3	56·2	57·7	55·6	15·2	1804	74	0·045	280	135	36	27	...	4	3	8	10	1	66	20	23
33	„ 15	70·6	49·0	58·8	57·7	55·2	15·8	2438	75	0·005	233	107	35	27	...	4	4	7	4	3	41	13	18
34	„ 22	69·8	46·1	56·5	56·9	55·4	22·7	1608	84	0·440	182	80	21	22	..	1	2	3	5	1	32	16	19
35	„ 29	67·3	43·8	56·1	55·7	55·1	21·9	2003	76	0·725	211	89	26	29	...	1	2	4	3	4	23	18	20
36	Sept. 5	63·6	50·0	56·1	55·1	54·8	2·5	1801	93	1·320	169	52	20	27	...	...	1	6	3	4	13	15	21
37	„ 12	65·8	51·4	57·5	56·1	55·6	7·5	1581	88	1·035	177	51	18	25	...	1	2	3	7	2	15	8	27
38	„ 19	65·6	44·2	55·4	54·8	54·9	27·9	2442	79	0·570	120	31	22	15	...	1	2	4	3	4	8	10	16
39	„ 26	61·4	40·2	51·0	51·5	54·3	19·1	3079	84	1·685	144	57	20	15	...	...	5	7	2	...	6	12	15
40	Oct. 3	64·8	42·0	51·8	51·1	43·4	14·2	1782	85	0·335	157	53	15	21	...	2	2	1	2	..	9	15	21
41	„ 10	58·5	38·3	49·3	49·8	53·0	21·2	3016	83	1·025	170	51	17	26	...	...	4	6	1	1	5	10	27
42	„ 17	54·4	32·9	43·7	46·6	52·2	7·4	3105	90	0·865	136	43	13	19	...	...	3	3	2	4	3	9	16
43	„ 24	50·7	31·4	38·7	43·3	50·9	9·3	1943	92	0·365	181	17	24	28	...	...	2	3	2	5	6	19	36
44	„ 31	47·8	29·1	37·5	41·5	49·6	24·7	1625	89	0·150	185	52	22	37	...	2	5	2	2	3	...	17	50
45	Nov. 7	47·1	26·6	37·7	41·0	48·5	1·8	1618	87	0·280	192	47	22	40	...	5	4	2	5	2	1	14	35
46	„ 14	48·9	30·2	39·2	40·8	47·5	6·7	2109	88	0·545	200	61	23	27	...	...	3	1	4	3	7	11	57
47	„ 21	47·6	33·3	40·2	41·2	47·0	13·5	1808	87	0·390	229	48	28	34	...	4	3	8	2	4	5	19	58
48	„ 28	46·7	32·6	40·6	42·6	46·8	...	2136	88	0·045	178	41	18	40	...	1	3	3	3	2	2	11	38
49	Dec. 5	47·0	26·0	37·3	39·6	46·4	2·7	2373	92	1·030	212	49	22	36	...	3	2	8	4	4	4	17	44
50	„ 12	47·7	33·2	40·0	41·6	45·8	1·2	2578	92	1·075	201	52	32	36	..	2	3	3	6	3	2	11	47
51	„ 19	40·8	26·3	33·4	38·7	45·6	2·4	1923	...	0·180	204	49	23	40	...	2	5	3	3	3	2	12	50
52	„ 26	51·8	27·1	35·8	37·4	44·7	6·8	1838	93	0·475	169	44	28	30	...	4	...	1	8	1	3	11	42
	1897.																						
53	Jan. 2	51·1	29·3	41·1	41·3	44·3	15·4	2630	88	0·675	231	63	34	32	...	3	4	7	4	1	4	15	48

UNHEALTHY HOUSES.

Housing of the Working Classes Act.

During the year I made representations to you under the Housing of the Working Classes Act, that 43 houses were in a state "so dangerous to health as to be unfit for human habitation." The houses were for the most part small, damp, and badly ventilated. There is a large number of such houses in the poorer and more crowded parts of the City, and it is very desirable that they should be removed. As a result of the action taken last year, 17 houses were closed either voluntarily by the owners, or in compliance with magistrates' orders. One house was put into repair, and I sanctioned its re-occupation. The remaining 25 houses have all been demolished. I regard the removal of these 25 houses as the only satisfactory ending to the proceedings taken with respect to them. It is not enough in many cases to have the houses I represent boarded up so as to be incapable of habitation. They should be pulled down in order to give more light and more air to any adjacent houses which remain tenanted. In some cases the demolition of certain of the houses in a court makes it possible to provide those which are left with back doors and windows, thus establishing through ventilation, an alteration which must, in my opinion, improve the health of the occupants. I think that every effort should be made to remodel the older blocks of property in the City in this way so as to reduce to a minimum the number of houses without through ventilation, and to provide sufficient air space both in front and at the back of such houses as continue to be inhabitated. As you are aware, the Building Bye-laws do not now allow the erection of houses unless good ventilation can be provided by leaving ample space between them and the nearest buildings, and what is desirable for new buildings is if anything even more desirable in the case of old ones. In suitable cases some arrangement might perhaps be made, on the understanding that if certain houses in a court were demolished, and if through ventilation were provided and the necessary repairs were carried out at the others, your Committee would offer no objection to the latter remaining occupied; but that unless these alterations were made, steps would be taken to obtain the closure of all.

Sanitary work.

I have been supplied by Mr. Parker, Inspector of Nuisances, with a return showing among other things the work done last year for the purpose of improving the house accommodation in the City. The return will be found in Table XI. It shows that during the year 90 houses were either put into habitable condition or closed. Ten of these were dealt with under the Public Health Act, 1875; and the remainder were houses which I had reported on under the Housing of the Working Classes Act, either in 1895 or 1896. In addition to these houses a great many others were improved in various ways. For instance, 3,006 were purified after the occurrence of infectious illness in them. More than 1,100 filthy houses were cleansed, and over 1,400 others were repaired. Connection between the interior of the house and the sewer was abolished in 74 instances by the removal of drain openings

from cellars, and in 238 instances by the disconnection of the sink pipe. I need hardly say that these were very necessary alterations, for the introduction of sewer air into dwellings cannot fail to be a danger to health. Eighteen houses were provided with better ventilation, and overcrowding, a source of serious mischief, was remedied in 40 cases.

CLOSET ACCOMMODATION.

Conversion of privies.

The conversion of the closets from the interception to the water carriage system is being steadily proceeded with. As you know, water-closets are provided at all new houses, and as soon as a pan or ashpit privy is found in a very bad condition efforts are made to get it altered into a water-closet. Last year 843 ashpit privies and 213 pan privies were replaced by water-closets. Two hundred and sixteen additional water-closets were also provided, chiefly for use at public houses where the accommodation was insufficient. Over 500 privies were cleansed, and 1,332 ashpits and the privies attached to them were repaired so as to mitigate as far as possible the nuisance arising from them. During the year 1,810,862 pans were emptied; 72,238 loads of ashes were collected from the houses they supplied; 43,876 loads of night soil were collected from midden ashpits, and 41,772 loads of dry ashes were removed from houses using water-closets.

Maintenance of privies.

LODGING HOUSES.

Lodging Houses.

The bye-laws relating to Lodging Houses give authority to the City Council to fix the maximum number of lodgers who may be allowed to use each room of the house, the number varying according to the size of the room. They make it illegal to allow unmarried males and females over ten years old to use the same room, or two males over ten to occupy the same bed. The keeper of a Lodging House must maintain the yard and closets attached to such house in good order. He must have the rooms swept and all refuse removed daily, and all the floors washed at least once a week in the case of a Common Lodging House, and once a month in the case of a House Let in Lodgings. He must also keep the painted surfaces clean, and have all the bedding and bedsteads cleansed at stated periods. A sufficient number of basins and towels are to be provided, and every day the windows of the sleeping rooms are to be thrown open and the bedding exposed to the air.

At the end of 1896 there were 79 Common Lodging Houses on the register, and they had accommodation for 1,911 lodgers. There were also 80 Houses Let in Lodgings, that is, houses in which separate rooms are rented by different tenants. In these there was accommodation for 457 inmates. In order to enforce the regulations respecting these two classes of houses 11,205 visits were paid by day, and 1,497 by night. Two summonses were taken out against Lodging House Keepers for not having swept the rooms up by ten o'clock in the morning. Fines of £2 and 10s. were imposed, the costs also being paid by defendants.

CANAL BOATS.

Canal Boats.

The Inspector who devotes his time to Canal Boat work, examined 774 boats last year. He found on these boats 1,240 men, 393 women, and 467 children. As a result of his inspections 64 written notices were issued respecting infringements of the regulations. Eight of these were sent because registration of the boat had been neglected, 11 were necessary because the certificate of registration was not on the boat as it ought to have been, and 13 had reference to the proper marking upon the boat of its name and registered number. These are, of course, technical matters which are necessary for efficient supervision, but have no direct bearing on health. Some of the other contraventions were much more important from a sanitary standpoint. Sixteen boats were found to be overcrowded, 8 had no provision for the separation of the sexes, 1 was not kept clean, 1 required painting, and 6 had not a sufficient supply of drinking water. The contraventions discovered were remedied without recourse to legal proceedings. Two boats were disinfected after the occurrence of infectious disease on board of them.

At the beginning of the year there were 398 boats on the register. During the year 25 certificates of registration were issued and 77 were cancelled, thus leaving 346 boats on the register at the end of the year.

WORKSHOPS.

Workshops.

The visits paid to Workshops, *i.e.*, to manufacturing premises in which no steam power is used, numbered 10,744. Seven hundred and sixty-eight Workshops were found to require limewashing, and 71 had to be repaired. In addition to the latter, 26 Workshops were structurally dangerous, and were therefore closed. Considerable improvements were made in the closet accommodation, 21 ashpits being filled up, 64 pan privies being removed, and 125 water-closets being provided. Proper ventilation was obtained for 46 Workshops, and overcrowding was remedied in 14 instances.

DAIRIES, COWSHEDS, AND MILKSHOPS.

It is illegal for any person to carry on the business of dairyman, cowkeeper, or milkseller without being registered in accordance with the Dairies, Cowsheds, and Milkshops Order. At the end of 1896 there were 23 Dairies, 71 Cowsheds, 2,093 Milkshops, and 82 purveyors of Milk on the register.

Dairies.

The Dairies are places where milk is stored in large quantities and disposed of wholesale to purveyors and milksellers, the purveyors being persons who have a milk round, but no place for storage. One hundred and twenty-six visits were paid to them during the year.

Cowsheds

The visits paid to Cowsheds numbered 1,850, the object being to see that they were kept clean, that the refuse was swept up, and the drainage maintained in good order.

Milkshops.

The visits to Milkshops amounted to 5,945. In 151 instances it was found necessary to order the shop to be limewashed, and in 26 cases the cellar, and in 16 the pantry, had to be similarly cleansed. The sale of lamp oil was found to be going on in 12 instances, of tripe in 7, of fish in 2, and of vinegar and pickles in 102 cases. All these businesses had been started after the shop had been registered, and were only discovered in the systematic visiting by the Inspector. In 5 cases dirty vessels for holding the milk were found, and the Inspector frequently had to call attention to the dirty practice of allowing the shop sweepings to be left under the counter, or in some other out-of-the way place.

Forty-seven cases of Infectious Disease occurred at Milkshops during the year. They comprised 1 of Smallpox, 34 of Scarlet Fever, 2 of Typhoid Fever, 8 of Diphtheria, and 2 of Erysipelas. In every instance the stock of milk was destroyed, and the business was suspended until disinfection had been carried out.

The applications to be placed on the Milkshop register numbered 211, of which 29 were refused, either because the premises were too small or because the applicant was unwilling to give up some other business incompatible with the sale of milk.

BAKEHOUSES.

Bakehouses.

The visits to Bakehouses numbered 1,123. Generally speaking they were found to be in good order. None of them were being used for any other purpose, no animals were kept in them, and no accumulations of refuse were found. Limewashing had to be ordered, however, in 82 cases.

SLAUGHTER HOUSES.

Proposed new Slaughterhouse.

In April I was asked by the Smithfield Market Sub-Committee to report upon the amended plans for a proposed Slaughter House in Bristol Street. In doing so I pointed out that the arrangement of stabling over the cattle pens and loft over the stabling was an undesirable one, not being good for the animals unless very perfect ventilation could be provided, and being likely to lead to the contamination of the food in the loft and so to render it less wholesome. I also pointed out that the proposed buildings would be very confined, and that as other buildings were erected on either side, lateral ventilation would become impossible.

I then expressed the opinion that it is very undesirable from a health point of view to perpetuate the existence of private Slaughter Houses. They not only contaminate the surrounding air, but also pollute the air of the sewers, complaints about which are very frequent. It is very difficult, if not

impossible, to have the meat thoroughly inspected, and there is considerable danger and inconvenience in driving animals along the streets to be slaughtered. Owing to all these considerations I am very strongly of opinion that it is desirable to reduce the number of private Slaughter Houses, and I am hoping that this will be done as soon as the Public Abattoirs in connection with the new Meat Market are completed.

Visits to Slaughter-houses.

I am informed by Mr. Edwards, Superintendent of Markets, that 9,109 visits were paid to Slaughter Houses. Seventeen were found to be dirty and were ordered to be cleansed. Two persons were summoned for contraventions of the Bye-laws, and both of them were convicted.

UNWHOLESOME FOOD.

Unwholesome Food.

At various times I examined a considerable quantity of bad meat, submitted to me by the Meat Inspectors. Altogether 1,975 lots were handed over voluntarily to the Inspectors, and 21 other lots were seized by them. Nearly 232 tons of bad meat were destroyed during the year. Fourteen butchers were fined for exposing bad meat for sale, the total fines amounting to £134.

The surrenders of bad fish, etc., amounted to 661, and the seizures to 11, the weight destroyed being nearly 100 tons. One dealer was summoned and fined £10.

About 6½ tons of bad fruit were also destroyed.

WATER SUPPLY.

Water Supply.

The results of the monthly analyses of the Corporation Water Supply are given in Table XII. The average quality of the Water was very similar to that of the previous year. It was rather higher in organic carbon and nitrates, but somewhat lower in organic nitrogen and hardness.

Well Waters.

The Water from eighteen shallow wells was examined, and in all cases was found to be polluted. During the year seventeen wells were closed by the owners without it being necessary to take legal action. The analytical results of the samples received during 1896 are given in Table X.

Analyses for Water Committee.

I received from the Water Committee, through your Inspector, Mr. W. Cross, 154 samples taken from the various sources of the City Supply, comprising 48 from Plant's Brook, 26 from the River Blythe, 25 from the River Bourne, 24 from Perry Stream, 12 from King's Vale Well, 10 from Perry Well, two each from Aston, Bournbrook, Longbridge, and Witton Wells, and one from Witton Stream. The results of the analyses were reported to the Water Committee.

SMOKE NUISANCES.

Smoke Nuisances.

In order to prevent any unnecessary fouling of the atmosphere by the emission of dense smoke from factory chimneys, your Inspectors made 6,315 observations last year, and detected 172 breaches of the regulations. In 92 cases letters were sent to the offenders, cautioning them not to repeat the offence. Summonses were taken out in 78 instances, and 76 convictions were obtained. The fines imposed amounted to £44 12s., and the costs to £31 6s. One summons was withdrawn and one dismissed.

OFFENSIVE TRADES.

Establishment of offensive trade.

In January, at the direction of your Committee, I inspected a place in Andover Street where I found a large quantity of acidified and coagulated blood was being stored for trade purposes. The offensiveness of the blood appeared to be reduced by acidulation and by sprinkling with soot. The smell, however, was very disagreeable, and the neighbours complained that in warm weather it was most offensive and sickening. I reported that, in my opinion, the storage of such material in a populous district should not be allowed, and permission to carry on the proposed business was refused.

Complaint of offensive trade.

In consequence of a complaint I paid three visits to a paint and varnish factory in Cherrywood Road. On two occasions the works were not in full activity, but on the other they were in full swing. I observed no offensive vapours outside the works, and the same remark was true of the works themselves. The materials manufactured were paints and colours which practically had no smell; and varnishes which were made from so-called gums or resins, wood tar, and volatile solvents, principally turpentine. The varnish was made in pans which required to be heated, with the result that certain vapours of the character of turpentine were given off. These would have produced a strong smell if they had been allowed to escape freely into the air, though they would not have been very offensive, and not injurious to the health of the neighbourhood. They were, however, conducted away from the pans into a stack, where, by an ingenious arrangement of the boiler furnace, they were consumed. The arrangements for the purpose were most complete, and in my opinion they were satisfactory. There was only one kind of varnish which was exposed to the air during cooling, this being held to be a necessity; the containing vessel stood in the large open space in the middle of the premises, and was so small that it could not be regarded as practically objectionable. Judging from my observations I considered the complaint to be greatly exaggerated, and did not see my way, on any ground, to condemn the works. The neighbours of whom I made enquiries had little to say against the odours or vapours emitted from the works; some of them expressed a liking for the smell. The health of the locality was good, and vegetation was entirely unaffected. It was utterly impossible that property could suffer structural injury from this cause, as had been alleged.

TABLE V.

Birth-rates and Death-rates in 33 Great Towns during 1896. *(Extracted from the Registrar General's Annual Summary.)*

Cities and Boroughs.	Birth-Rate.	Death Rates per 1000 Persons living from									Deaths under 1 Year to 1000 Births.	Percentage to Total Deaths.		Cities and Boroughs.
		All causes.	Principal Zymotic Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diph-theria.	Whooping Cough.	Fever.	Diarrhœa.		Inquest Cases.	Uncerti-fied Causes of Death.	
33 Towns - -	30·7	18·9	2·86	0·00	0·71	0·22	0·38	0·57	0·19	0·79	167	7·4	1·5	33 Towns.
London - - -	30·2	18·6	3·14	0·00	0·82	0·21	0·60	0·65	0·14	0·72	161	9·1	0·6	London.
West Ham - -	32·6	16·1	3·00	0·02	0·44	0·21	0·70	0·59	0·23	0·81	165	5·7	3·7	West Ham.
Croydon - - -	25·1	14·2	1·94	—	0·56	0·04	0·24	0·52	0·15	0·43	150	7·5	—	Croydon.
Brighton - - -	24·7	16·1	1·63	—	0·45	0·05	0·16	0·26	0·11	0·60	135	6·1	1·7	Brighton.
Portsmouth - -	27·6	16·6	2·11	—	0·69	0·11	0·11	0·32	0·15	0·73	154	7·0	0·7	Portsmouth.
Plymouth - -	28·8	19·6	2·30	—	1·04	0·03	0·14	0·19	0·07	0·83	178	6·7	0·5	Plymouth.
Bristol - - -	27·6	16·9	1·90	0·02	0·61	0·25	0·16	0·26	0·08	0·52	142	8·4	1·2	Bristol.
Cardiff - - -	33·8	16·8	2·27	0·02	0·23	0·17	0·37	0·63	0·08	0·77	165	8·3	1·3	Cardiff.
Swansea - - -	30·5	16·8	1·18	0·02	0·06	0·04	0·10	0·56	0·15	0·25	161	6·8	1·1	Swansea.
Wolverhampton	34·4	20·0	3·11	—	0·10	0·24	0·60	0·35	0·41	1·41	184	4·4	1·3	Wolverhampton.
Birmingham - -	32·6	20·8	3·57	—	0·60	0·29	0·53	0·74	0·21	1·20	197	2·5	5·0	Birmingham.
Norwich - - -	30·8	17·4	2·33	—	1·06	0·04	0·22	0·08	0·19	0·74	164	7·9	1·6	Norwich.
Leicester - -	30·8	16·7	2·97	—	0·60	0·25	0·32	0·25	0·20	1·35	187	6·8	2·7	Leicester.
Nottingham - -	28·9	17·5	2·47	—	0·88	0·11	0·06	0·39	0·34	0·69	168	6·9	1·4	Nottingham.
Derby - - - -	28·0	15·7	1·91	—	0·33	0·11	0·10	0·52	0·20	0·65	151	9·3	0·4	Derby.
Birkenhead - -	31·7	19·2	2·97	—	1·04	0·29	0·20	0·53	0·23	0·68	177	6·8	1·0	Birkenhead
Liverpool - -	34·9	22·7	3·01	—	0·48	0·35	0·24	0·46	0·32	1·16	172	6·9	3·4	Liverpool.
Bolton - - -	31·3	20·7	2·80	—	0·05	0·33	0·11	0·83	0·39	1·09	168	7·8	0·3	Bolton.
Manchester - -	33·0	22·6	3·42	—	1·06	0·37	0·15	0·67	0·23	0·94	176	7·8	1·3	Manchester.
Salford - - -	34·9	22·6	4·10	—	0·94	0·49	0·23	0·88	0·33	1·23	199	6·9	2·1	Salford.
Oldham - - -	27·2	20·3	2·91	—	1·15	0·38	0·24	0·36	0·16	0·62	184	5·8	0·3	Oldham.
Burnley - - -	31·0	17·5	2·19	—	0·60	0·04	0·46	0·27	0·12	0·70	170	4·8	1·4	Burnley.
Blackburn - -	27·7	17·9	1·82	—	0·31	0·07	0·08	0·36	0·26	0·74	171	5·1	2·7	Blackburn.
Preston - - -	32·6	20·8	1·86	—	0·03	0·03	0·10	0·37	0·22	1·11	203	2·8	4·3	Preston.
Huddersfield -	20·5	16·5	1·60	—	0·27	0·19	0·21	0·54	0·13	0·26	166	3·3	2·5	Huddersfield.
Halifax - - -	24·3	17·3	1·10	—	0·17	—	0·22	0·34	0·21	0·16	149	5·5	1·7	Halifax.
Bradford - -	25·5	16·5	1·58	0·00	0·46	0·10	0·07	0·45	0·12	0·38	143	6·1	0·8	Bradford.
Leeds - - - -	30·7	18·8	2·28	0·00	0·49	0·17	0·12	0·60	0·21	0·69	169	8·1	0·6	Leeds.
Sheffield - -	34·0	19·3	2·91	—	0·57	0·29	0·16	0·58	0·29	1·02	173	5·0	3·5	Sheffield.
Hull - - - -	31·9	18·9	3·32	—	1·16	0·25	0·23	0·50	0·28	0·90	173	5·8	2·8	Hull.
Sunderland - -	34·2	19·8	3·00	—	1·00	0·19	0·06	0·53	0·37	0·85	158	6·5	0·9	Sunderland.
Gateshead - -	35·8	19·1	3·10	—	1·37	0·26	0·18	0·35	0·22	0·72	172	6·4	0·9	Gateshead.
Newcastle - -	31·1	18·5	3·08	—	0·64	0·12	0·18	0·48	0·15	0·51	165	8·1	0·5	Newcastle.

DEATHS FROM	1891	1892	1893	1894	1895	*1896
Cancer	324	293	313	303	332	346
Phthisis	815	716	775	630	718	694
Other Tubercular Diseases	266	265	270	229	287	258
Premature Birth	295	345	359	346	376	384
Old Age	477	348	541	388	510	430
Bronchitis, Pneumonia, and Pleurisy	2,469	2,100	2,188	1,811	1,770	1,838
Diseases of Nervous System	902	864	915	861	931	989
Diseases of Heart	673	684	584	586	613	628
Diseases of Digestive System	570	597	712	582	772	828
Diseases of Urinary System	222	225	256	215	207	230
Accident or Negligence	356	292	296	280	329	279
Debility, Atrophy, Inanition, and Marasmus ...	593	592	750	615	658	677

* 53 weeks.

TABLE III.

Showing the Number of Deaths in the Ten Years, 1886 to 1895, from the Seven Principal Zymotic Diseases, and the Number in 1896.

		1886.	1887.	1888.	1889.	1890.*	1891.	1892.	1893.	1894.	1895.	1896.*	Annual Average of 10 years prior to 1896.
Smallpox		0	2	0	0	0	7	0	70	171	8	4	26
Measles		402	251	202	214	354	107	340	48	316	133	310	237
Scarlet Fever		42	37	40	162	218	95	68	68	75	133	154	94
Diphtheria		80	67	48	59	66	43	67	43	50	163	246	69
Whooping Cough ...		99	403	248	297	224	303	285	321	219	173	386	257
Fever	Typhus	0	0	0	0	0	0	0	0	0	0	0	0
	Typhoid or Enteric...	63	77	64	45	64	80	39	94	105	82	108	71
	Continued	6	8	5	4	2	1	2	8	4	2	2	4
Diarrhœa		770	579	317	489	463	340	443	828	256	605	589	509
Total		1,462	1,424	924	1,270	1,391*	976	1,244	1,480	1,196	1,299	1,799*	1,267

* 53 weeks.

Year.	Birth-rate per 1,000 persons living.	Death-rate per 1,000 persons living.	Death-rate in Infants under One Year per 1,000 Births.	Death-rate in Children under Five Years per 1,000 Children living.	Death-rate from Seven chief Zymotic Diseases.	Deaths in Public Institutions: Percentage on total deaths.
1886	34·2	20·1	174	70	3·2	13·5
1887	33·2	20·0	174	69	3·1	13·6
1888	32·4	18·2	152	61	2·0	14·1
1889	32·7	19·2	168	69	2·7	14·6
1890	32·1	21·4	181	75	2·9	15·5
1891	33·8	21·1	165	69	2·0	16·4
1892	33·2	20·0	166	73	2·6	14·6
1893	32·6	21·5	198	77	3·0	15·6
1894	31·6	18·2	164	70	2·4	17·3
1895	32·3	19·9	182	76	2·6	16·8
1896	32·5	20·4	197	90	3·5	14·9
Average of 10 Years prior to 1896.	32·8	20·0	172	71	2·6	15·2

Population, Births, and Deaths in the Eleven Years 1886–1896.

Year.	Estimated Population.	Births.	Total Deaths.	Deaths.			
				Of Infants under One Year old.	Of Children under Five Years old.	From Seven chief Zymotic Diseases.	In Public Institutions.
1886 ...	458,110	15,622	9,182	2,712	4,244	1,462	1,239
1887 ...	462,251	15,315	9,225	2,670	4,137	1,424	1,259
1888 ...	466,430	15,076	8,465	2,293	3,652	924	1,195
1889 ...	470,646	15,357	9,035	2,579	4,096	1,270	1,320
1890 ...	474,900	15,487*	10,329*	2,798*	4,504*	1,391*	1,600*
1891 ...	479,193	16,166	10,077	2,673	4,015	976	1,650
1892 ...	483,526	16,026	9,642	2,664	4,234	1,244	1,411
1893 ...	487,897	15,881	10,445	3,146	4,452	1,480	1,631
1894 ...	492,301	15,505	8,946	2,539	3,980	1,196	1,549
1895 ...	496,751	16,014	9,863	2,910	4,308	1,299	1,656
1896 ...	501,241	16,582*	10,405*	3,265*	5,063*	1,799*	1,554*
Average of 10 years prior to 1896.	477,200	15,645	9,521	2,698	4,162	1,267	1,451

* 53 weeks.

1.—Population at Census 1891, 478,116.
2.—Number of Inhabited Houses at Census 1891, 95,516.
3.—Average number of Persons in each House at Census 1891, 5·0.
4.—Area of the City, in acres, 12,705.

APPENDIX.

ANALYTICAL WORK.

Analytical work.

Including those already alluded to under the heading Water Supply, I received during the year 357 samples of water, sewage, and other articles not under the Food and Drugs Acts, being a decided increase on the previous year, when 281 articles were analysed. The following table gives particulars of the various Committees for whom the articles were examined:—

	Number of samples.	
Water Committee—		
Water, Sewage	184	
Boiler Fluid, Milk, Sand	9	
		193
Public Works Committee and Drainage Board—		
Water, Effluent, Sewage	87	
White Lead, Chlorinated Lime, etc.	10	
		97
Health Committee—		
Water	30	
Poudrette, Cylinder Oils, White Lead, etc.	29	
		59
Other Committees and Officials—		
Water, Paint, etc.		8
		357

I remain,

Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D.,

Medical Officer of Health.

TABLE VI.

Number of Cases Reported under the Infectious Disease (Notification) Act, 1889, during each Week of the Year 1896.

Number.	Week. Date of ending.	Smallpox.	Scarlet Fever.	Diphtheria.	Membranous Croup.	Typhus Fever	Typhoid Fever.	Simple Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Total.
	1896.												
1	January 4th	...	76	16	6	...	16	...	...	...	...	26	140
2	„ 11th	...	52	20	3	...	10	...	...	...	...	17	102
3	„ 18th	...	65	21	4	...	12	...	...	...	...	13	115
4	„ 25th	...	56	31	1	...	6	1	..	...	...	28	123
5	February 1st	...	50	16	4	...	10	1	...	...	...	23	104
6	„ 8th	...	62	32	...	...	5	...	...	...	...	14	113
7	„ 15th	...	83	19	4	...	8	...	..	...	...	21	135
8	„ 22nd	...	51	13	2	...	6	...	...	1	...	11	84
9	„ 29th	...	65	26	3	...	3	...	...	...	...	16	113
10	March 7th	...	67	12	3	...	9	...	...	...	...	16	107
11	„ 14th	...	57	19	2	...	11	...	...	1	...	11	101
12	„ 21st	1	61	20	2	...	9	...	...	...	...	12	105
13	„ 28th	1	62	14	2	...	7	...	...	...	...	14	100
14	April 4th	...	55	14	6	...	7	...	...	...	...	14	96
15	„ 11th	...	64	18	2	...	13	...	...	1	...	16	114
16	„ 18th	4	64	20	3	...	11	...	...	...	...	15	117
17	„ 25th	2	66	18	2	...	8	...	...	1	...	11	108
18	May 2nd	...	60	16	...	...	6	...	...	...	...	10	92
19	„ 9th	...	72	22	2	...	9	...	...	...	...	16	121
20	„ 16th	1	47	22	5	...	8	...	...	1	...	12	96
21	„ 23rd	1	39	17	4	...	10	...	...	1	...	16	88
22	„ 30th	1	51	22	3	...	8	1	...	2	...	16	104
23	June 6th	...	49	24	3	...	12	...	...	...	...	15	103
24	„ 13th	1	69	41	1	...	5	...	...	...	...	17	134
25	„ 20th	...	51	23	2	...	1	...	...	1	...	9	87
26	„ 27th	...	70	17	1	...	6	...	1	...	...	14	109
27	July 4th	..	57	17	1	...	6	...	...	1	...	11	93
28	„ 11th	...	98	20	...	...	2	...	...	...	...	15	135
29	„ 18th	...	63	15	1	...	4	...	...	1	...	11	95
30	„ 25th	...	52	17	...	...	9	..	...	...	..	5	83
31	August 1st	1	51	27	...	...	10	...	...	1	...	8	98
32	„ 8th	...	55	39	1	...	13	...	...	...	...	8	116
33	„ 15th	...	68	35	1	...	16	...	...	1	...	14	135
34	„ 22nd	...	72	17	2	...	17	1	...	...	...	20	129
35	„ 29th	...	68	21	...	...	15	...	...	...	...	23	127
36	September 5th	...	108	31	1	...	8	...	...	1	...	20	169
37	„ 12th	...	62	17	1	...	11	...	...	...	...	17	108
38	„ 19th	...	80	17	2	...	7	...	...	...	...	6	112
39	„ 26th	...	91	26	...	...	9	...	...	1	...	12	139
40	October 3rd	...	86	19	1	...	7	...	...	...	...	14	127
41	„ 10th	...	93	19	...	...	11	...	...	2	...	18	143
42	„ 17th	...	83	20	...	...	11	...	...	2	...	19	135
43	„ 24th	1	85	28	2	...	23	...	...	1	...	17	157
44	„ 31st	...	81	17	...	...	7	...	...	1	...	12	118
45	November 7th	...	53	14	1	...	8	...	...	...	...	15	91
46	„ 14th	...	65	27	...	...	5	...	...	3	...	19	119
47	„ 21st	...	56	30	1	...	14	...	...	1	...	11	113
48	„ 28th	...	64	21	2	...	9	...	...	2	..	18	116
49	December 5th	...	47	23	...	...	6	...	...	...	...	10	86
50	„ 12th	...	55	7	1	...	13	1	...	1	...	13	91
51	„ 19th	...	40	17	3	...	7	1	...	...	...	11	79
52	„ 26th	...	39	7	1	...	12	...	...	1	...	11	71
	1897.												
53	January 2nd	...	53	19	2	...	7	...	...	2	...	21	104
	Totals ...	14	3389	1100	94	...	483	6	1	31	...	782	5900

TABLE VII.

Cases of Infectious Disease Notified during the Year ending January 2nd, 1897.

Classified according to ages. wards, and institutions.

DISEASES.	AGES.							WARDS.																							CITY.
	0 to 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and up.	Rotton Park.	All Saints'.	Ladywood.	St. Paul's.	St. George's.	St. Stephen's.	St. Mary's.	St. Bartholomew's.	Market Hall.	St. Thomas's.	St. Martin's.	Edgbaston and Harborne.	Deritend.	Bordesley.	Duddeston.	Nechells.	Balsall Heath.	Saltley	Institutions.	
SMALLPOX	..	1	1	7	3	2	..	1	2	1	..	..	..	..	1	..	3	1	..	..	1	1	..	1	2	..	14
SCARLET FEVER ..	32	981	1927	353	93	3	..	233	291	121	60	227	132	61	172	46	127	174	139	217	429	113	206	305	290	46	3389
DIPHTHERIA	24	287	419	183	157	25	5	118	127	89	52	51	57	19	40	7	40	32	45	41	97	28	82	78	92	5	1100
MEMBRANOUS CROUP.	7	68	19	..	..	..	..	10	9	6	5	4	3	4	4	2	3	2	..	6	12	6	6	1	11	..	94
TYPHUS FEVER.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..
TYPHOID FEVER ..	3	37	138	161	119	23	2	29	32	24	9	31	36	17	21	10	1	22	17	31	30	20	59	44	36	3	483
SIMPLE CONTINUED FEVER	..	1	2	1	1	..	1	1	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	6
RELAPSING FEVER ..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
PUERPERAL FEVER ..	..	..	..	7	24	..	..	1	4	..	..	..	2	..	6	..	2	5	1	2	3	..	2	1	2	..	31
CHOLERA..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
ERYSIPELAS	35	47	88	116	235	205	56	70	59	61	22	31	36	34	69	22	30	36	22	50	62	24	28	52	45	26	782
TOTALS ..	101	1423	2594	828	632	258	64	464	525	305	148	344	266	135	313	87	217	273	225	347	634	192	383	483	479	80	5900

TABLE VIII.

Cases of Infectious Disease Notified during each of the Five Years, 1892–1896.

	1892.	1893.	1894.	1895.	1896.	Average of five years, 1892–1896.
Smallpox	27	979	2,074	100	14	639
Scarlet Fever	1,418	1,614	1,788	2,964	3,389	2,235
Diphtheria	456	322	316	640	1,100	567
Membranous Croup	77	65	90	101	94	85
Typhus Fever	0	4	0	0	0	1
Typhoid Fever	260	489	511	436	483	436
Simple Continued Fever	5	25	7	4	6	9
Relapsing Fever	1	0	0	0	1	0
Puerperal Fever	40	54	42	24	31	38
Cholera	0	0	0	0	0	0
Erysipelas	569	852	772	818	782	759
Total	2,853	4,404	5,600	5,087	5,900	4,769

TABLE IX.

Temperature of the Air and Ground, Rainfall, Sunshine, and Wind, in each Month of the Year 1896.

Observed at the Birmingham and Midland Institute Observatory, Edgbaston, by Mr. Alfred Cresswell.

Month.	Temperature of the Air.						Temperature of the Ground.		Hours of Sunshine.		Rainfall in Inches.		Days on which Rain Fell.	Miles of Wind.	
	Highest in the shade.		Lowest in the shade.		Mean for the month.		Highest 1 foot deep.	Highest 4 feet deep.							
	1896.	Above or below the previous highest. *	1896.	Above or below the previous highest. *	1896.	Above or below the average. *			1896.	Above or below the average. *	1896.	Above or below the average. *		1896.	Above or below the average. *
January ..	50·8	− 7·2	27·2	+ 16·4	39·9	+ 4·1	45·4	45·5	26	− 13	1·15	− 0·64	7	8184	− 1941
February ..	53·8	− 8·1	24·4	+ 16·4	39·1	+ 2·4	43·5	44·7	69	+ 14	0·56	− 0·54	8	7595	− 1845
March ..	63·5	− 1·3	29·8	+ 8·5	43·5	+ 3·6	46·9	45·5	91	− 3	2·68	+ 1·19	22	11254	+ 1193
April	63·3	− 15·7	33·4	+ 6·4	47·6	+ 2·9	50·0	47·0	98	− 17	1·33	− 0·31	11	8806	− 118
May	75·4	− 2·2	35·4	+ 4·4	52·9	+ 1·5	56·0	49·7	164	+ 22	0·21	− 1·90	2	8582	− 718
June	81·0	− 1·8	46·2	+ 7·9	60·7	+ 3·2	61·7	53·2	156	+ 5	1·91	+ 0·07	13	7247	− 681
July	81·7	− 2·9	45·8	+ 6·3	61·1	+ 2·2	64·0	56·0	145	+ 22	1·25	− 1·29	12	7652	− 1128
August ..	70·6	− 15·0	43·8	+ 2·6	56·8	− 1·9	59·8	55·7	78	− 54	1·74	− 1·23	14	8476	− 271
September ..	65·8	− 16·0	40·2	+ 7·2	54·4	− 0·9	57·0	55·0	69	− 47	4·34	+ 2·63	23	9631	+ 1608
October ..	58·5	− 11·5	29·1	+ 1·2	43·3	− 3·4	53·7	53·4	61	− 12	2·50	− 0·18	19	10254	+ 1285
November ..	48·9	− 12·7	26·0	+ 2·5	38·9	− 4·0	44·1	48·9	24	− 15	1·26	− 1·20	11	8718	− 1000
December ..	51·8	− 3·6	26·3	+ 11·8	38·1	+ 0·7	42·6	46·6	19	− 12	3·34	− 1·31	21	10194	+ 364

* In the nine years 1887-1895.

TABLE X.

Temperature and Rainfall in each Month and Year from 1887 to 1896.

MONTH.	TEMPERATURE.											RAINFALL.										
	1887	1888	1889	1890	1891	1892	1893	1894	1895	Average for nine years 1887-1895.	1896	1887	1888	1889	1890	1891	1892	1893	1894	1895	Average for nine years 1887-1895.	1896
	°	°	°	°	°	°	°	°	°	°	°											
January ...	35·2	37·2	36·8	41·1	34·4	35·2	35·1	36·7	30·6	35·8	39·9	1·19	0·50	0·59	2·80	1·92	1·98	1·75	1·61	3·92	1·79	1·15
February	38·3	34·8	36·5	36·8	40·2	37·3	39·2	39·9	27·5	36·7	39·1	0·62	0·11	1·66	0·52	0·69	1·41	2·56	2·05	0·32	1·10	0·56
March ...	37·6	36·9	39·5	42·6	38·8	35·6	45·3	42·6	40·4	39·9	43·5	1·38	2·41	2·64	1·47	1·22	0·85	0·50	1·05	1·91	1·49	2·68
April ...	41·6	42·1	43·7	44·0	42·4	44·9	49·6	48·5	45·5	44·7	47·6	1·47	1·89	2·91	0·69	2·13	1·23	0·33	1·62	2·37	1·64	1·33
May ...	47·6	51·1	54·3	52·7	48·4	53·2	54·5	47·1	53·9	51·4	52·9	1·88	0·83	4·00	2·12	3·38	1·85	2·08	2·01	0·82	2·11	0·21
June ...	59·9	55·2	59·0	57·1	57·4	56·5	59·0	55·6	58·0	57·5	60·7	2·17	2·16	0·49	1·62	3·27	2·74	1·08	2·16	0·89	1·84	1·91
July ...	63·9	55·9	59·0	57·6	58·0	56·8	61·0	59·8	58·5	58·9	61·1	0·93	5·11	1·53	2·39	2·08	2·52	1·64	3·36	3·25	2·54	1·25
August ...	60·2	57·4	58·6	57·5	56·9	59·2	63·2	56·4	59·2	58·7	56·8	2·38	3·27	2·92	3·74	3·56	3·73	2·25	2·12	2·75	2·97	1·74
September	52·5	53·7	55·1	58·6	57·2	54·0	54·8	52·1	59·9	55·3	54·4	2·31	1·20	2·17	1·26	1·63	2·97	1·72	1·70	0·45	1·71	4·34
October ...	44·4	46·6	46·8	49·2	48·4	44·5	48·8	47·2	44·8	46·7	43·3	2·11	0·32	3·19	1·56	5·36	2·84	2·45	3·48	2·81	2·68	2·50
November	40·1	45·5	44·0	42·5	41·3	43·2	39·9	45·1	44·6	42·9	38·9	1·78	4·41	1·04	3·22	2·74	1·79	1·38	2·48	3·41	2·46	1·26
December	37·3	40·3	37·9	29·8	39·2	34·7	39·5	40·1	38·0	37·4	38·1	1·58	2·41	1·80	0·71	3·16	1·69	3·02	1·88	1·99	4·65	3·34
Year ...	46·5	46·4	47·6	47·5	46·9	46·3	49·2	47·6	46·7	47·2	48·0	19·80	24·62	24·94	22·10	31·14	25·60	20·76	25·52	24·89	26·98	22·27

TABLE XI.

Summary of NUISANCES Abated and other Work done during the Year 1896.

(Return made by Mr. Parker, *Inspector of Nuisances.*)

No of Drains opened and cleared from obstruction	4,375
,, Drains efficiently trapped	1,802
,, Drains in cellars disconnected from the sewer or removed...	74
,, Drains removed from under Dwelling Houses	12
,, Sink Drains disconnected from the sewer	238
,, Sink Bend Pipes repaired or affixed	423
,, Overflow Pipes from Water Cisterns disconnected	19
,, Premises supplied with drains	147
,, Houses disinfected, cleansed, and purified, after infectious disease	3,006
,, Houses cleansed and whitewashed	1,101
,, Houses repaired	1,424
,, Houses supplied with wholesome water	7
,, Houses rendered fit for human habitation, closed or demolished	90
,, Houses provided with efficient ventilation	18
,, Cases of overcrowding of houses remedied	40
,, Accumulations of water in cellars removed	181
,, Spouts repaired	356
,, Additional Water Closets provided for Dwelling Houses ...	216
,, Soilpipes removed from inside dwelling houses	51
,, Privies cleansed	523
,, Ashpit Privies converted to water closets	843
,, Pan Privies converted to water closets	213
,, Ashpits and Privies repaired	1,332
,, Urinals cleansed, repaired, or re-constructed	593
,, Back Yards paved or repaired...	552
,, Premises from which fowls have been removed	238
,, Nuisances from swine and swine styes abated	115
,, Accumulations of wash, manure, etc., removed	848
,, Premises reported to the City Surveyor's Department as dangerous, and rendered safe	812
,, Defective Water Fittings reported to the Water Department, and repaired	462
Total	20,111

Number of Prosecutions	29	
,, Withdrawals	1	
,, Convictions	28	
Amount of Costs	£59	7s. 6d.
,, Penalties	—	

SMOKE NUISANCES.

No. of Observations made by the Inspectors	6,315
,, Manufacturers Reported for the emission of dense smoke ...	172
,, ,, Cautioned	92
,, ,, Summoned	78
,, Prosecutions Withdrawn	1
,, ,, Dismissed	1

Amount of Penalties	£44	12	6
,, Costs	£31	6	0

WORKSHOPS.

No. of Visits to Workshops	10,744
,, Sanitary Defects and Contraventions of Regulations Remedied	1,260

DAIRIES, COW SHEDS, AND MILKSHOPS.

No. of Visits to Cow Sheds	1,850
,, Visits to Dairies	126
,, Visits to Milk Shops and Milk Stores	5,945
,, Sanitary Defects and Contraventions of Regulations Remedied	321

BAKEHOUSES.

No. of Visits to Bakehouses	1,123
,, Sanitary Defects and Contraventions of Regulations Remedied	82

COMMON LODGING HOUSES.

No. of Registered Common Lodging Houses	79
,, Lodgers allowed	1,911
,, Houses Registered under the Public Health Act, 1875 ...	80
,, Lodgers allowed	457
,, Visits by day	11,205
,, Visits by night	1,497
,, Lodgers found occupying the Houses	26,376
,, Persons Summoned	2

THE CANAL BOATS ACTS, 1877 AND 1884.

No. of Canal Boats inspected	774
,, Canal Boats registered	25
,, Contraventions of Regulations Remedied	64
,, Persons Summoned	0

SLAUGHTER HOUSES.

(Return made by MR. EDWARDS, *Superintendent of the Markets.)*

No. of Visits	9,109
Voluntary Surrenders of Meat	1,975
Seizures of Bad Meat...	21
Weight Destroyed	232 tons
Voluntary Surrenders of Fish, &c.	661
Seizures of Fish, &c.	11

CONTAGIOUS DISEASES (ANIMALS) ACT.

(Return made by MR. EDWARDS, *Superintendent of the Markets.)*

No. of Visits to Railway Stations	886
No. of Visits to Cow Houses	78

TABLE XII.—WATER: RESULTS OF ANALYSES

Date of Receipt of Sample.	DESCRIPTION.	Temp. C.	Total Solid Impurity	Organic Carbon.	Organic Nitrogen.
1896.	**CORPORATION SUPPLY.**				
Jan. 8th	6 Court, Lower Hurst Street	5·6	30·2	·300	·050
Feb. 10th	7 Court, Water Street	6·7	35·2	·185	·035
Mar. 5th	11 Court, Parker Street	6·7	30·2	·140	·020
April 14th	Court between 87 and 88, Floodgate Street	8·9	27·6	·240	·040
May 13th	6 Court, Loveday Street	14·4	29·8	·220	·030
June 10th	Ryland Grove, Coplow Street	16·7	31·8	·190	·020
July 16th	32 Court, Lawley Street	19·4	30·0	·260	·035
Aug. 12th	Court between 45 and 46, Miles Street	14·4	32·4	·240	070
Sept. 9th	Matlock Place, High Street, Harborne	15·0	33·6	·240	·020
Oct. 6th	Dover Terrace, Great Francis Street	11·1	32·4	·430	·100
Nov. 9th	4 Court, Cregoe Street	5·0	36 6	·300	·030
Dec. 4th	11 Court, Ruston Street	5·0	34·6	·260	·030
	Average Results ... 1896...	10·7	32·0	·250	·040
	,, ,, ... 1895...	10·3	31·9	·219	·049
	,, ,, ... 1894...	10·9	30·3	·174	·046
	,, ,, ... 1893...	10·6	30·1	·186	·037
	,, ,, ... 1892...	10·1	28·1	·185	·028
	WELL WATERS.				
Mar. 19th	*Holly Cottages, 137 and 139, Metchley Lane	...	75·0	...	...
,, 19th	3, 5, 7, 9, and 11, Lordswood Road	...	113·0	...	...
,, 19th	5, 6, 7, and 8, Norton Street, Balsall Heath	...	204·0	...	...
,, 19th	35, Sherbourne Road	...	147·0	...	...
April 22nd	Raybould's Buildings, Park Road, Harborne (Pump 1)	...	61·0	...	...
,, 22nd	Raybould's Buildings, Park Road,				
,, 22nd	Harborne (Pump 2)	...	57·0	...	...
	"South Bank," Harborne Road	...	55·0	...	...
May 9th	1 to 4, Bennett's Buildings, Longbridge Road	...	352·0	...	...
July 10th	*†Park House, Nechells Park Road	...	63·0	...	...
Sept. 18th	77 and 79, Mary Street, Balsall Heath	...	154·0	...	...
,, 18th	83 and 85 Mary Street, Balsall Heath	...	175·0	...	...
,, 18th	§175 to 179 Edwardes Street	...	153·0	...	...
,, 18th	*111 and 112 Vincent Street	...	151·0	...	...
,, 18th	8 and 9, Seymour Street	...	122·0	...	...
,, 18th	§10 and 11, Seymour Street	...	164·0	...	...
Nov. 9th	*Mr. Turner's, The Farm, Cherrywood Road	...	108·0	...	...
,, 9th	§Bywater House, 280 and 282, Bordesley Green	...	126·0	...	...
Dec. 7th	‡100 Wenman Street	...	180·0	...	...

* Diphtheria. † Scarlet Fever. § Typhoid Fever ‡ Puerperal Fever.

EXPRESSED IN PARTS PER 100,000.

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen	Previous Sewage or Animal Contamination. (Estimated.)	Chlorine.	Hardness.			REMARKS
					Temporary.	Permanent.	Total.	
					°	°	°	
none	·22	270	1,880	1·8	8·0	12·5	20·5	Clear; yellowish green
·007	·37	·411	3,440	3·2	9·5	11·5	21·0	Almost clear; green
none	·29	·310	2,580	2·3	9·0	11·5	20·5	Almost clear; pale green
·001	·20	·241	1,690	1·8	8·0	12·5	20·5	Almost clear; pale green
·002	·35	·382	3,200	2·8	7·0	12·0	19·0	Very slightly turbid; greenish grey
·001	·20	·221	1,690	2·4	7·5	13·0	20·5	Very slightly turbid; pale green
·001	·15	·186	1,190	2·0	11·0	12·5	23·5	Very slightly turbid; green
·001	·30	·371	2,690	3·0	8·5	13·0	21·5	Very slightly turbid; pale green
·001	·30	·321	2,690	2·6	10·0	13·5	23·5	Very slightly turbid; pale green
·001	·20	·301	1,690	1·8	8·0	15·5	23·5	Very slightly turbid; yellowish green
·002	·45	·482	4,200	3·0	12·5	14·0	26·5	Almost clear; pale green
none	·40	·430	3,680	2·6	8·5	14·5	23·0	Clear; pale green
·001	·29	·327	2,550	2·4	9·0	13·0	22·0	
none	·22	·270	1,890	2·3	9·2	13·7	22·9	
none	·21	·251	1,820	2·2	7·0	13·1	20·1	
·001	·27	·304	2,350	2·1	7·5	13·2	20·7	
·001	·26	·291	2,320	1·9	8·0	12·2	20·2	
none	5·2	...	52,000	11·9	...	...	...	Very slightly turbid
·035	7·4	...	74,000	10·9	...	...	...	Slightly turbid
·001	5·4	...	54,000	15·5	...	...	...	Very slightly turbid
·002	3·8	...	38,000	12·8	...	...	...	Very slightly turbid
·001	2·0	...	20,000	8·1	...	...	...	Turbid; grey
·001	0·4	...	3,700	6·8	...	...	...	Very slightly turbid; grey
·001	3·2	...	32,000	5·4	...	...	...	Almost clear; blue
·005	5·5	...	55,000	84·5	...	...	...	Very slightly turbid
·001	3·0	...	30,000	4·1	...	...	...	Very slightly turbid; small floating vegetable particles
·001	4·3	...	43,000	12·2	...	. .	...	Almost clear
·001	5·5	...	55,000	13·8	...	...	..	Almost clear
·001	2·2	...	22,000	21·1	...	...	...	Almost clear
·009	4·4	...	44,000	8·8	...	...	...	Almost clear
·001	4·8	...	48,000	9·7	...	...	...	Very slightly turbid; floating particles
·001	6·0	...	60,000	17·8	...	...	...	Very slightly turbid; floating particles
·001	3·6	...	36,000	7·8	...	...	...	Very slightly turbid; floating particles
·002	3·2	...	32,000	6·5	...	...	...	Very slightly turbid; floating particles
none	5·7	...	57,000	11·8	...	...	...	Slightly turbid; very small flocculent particles

TABLE XIII.

RETURN FOR THE PERIOD 1ST JULY, 1895, TO 30TH JUNE, 1896, RESPECTING THE VACCINATION OF CHILDREN WHOSE BIRTHS WERE REGISTERED IN THE CITY DURING THE SAID PERIOD.

	Number of Births returned in the "Birth List Sheets" as Registered.	Number of these Births duly entered in Columns 10, 11, and 13 of the "Vaccination Register" (Birth List Sheets), viz.:				Number of these Births which remained unentered in the "Vaccination Register" on account (as shown by Report Book) of			Number of these Births remaining neither duly entered in the "Vaccination Register" (cols. 3, 4, 5, and 6 of this Return) nor temporarily accounted for in the "Report Book" (cols. 8, 9, and 10 of this Return).
		Col. 10.	Col. 11.		Col. 13.				
		"Successfully Vaccinated."	"Insusceptible of Vaccination."	"Had Smallpox."	"Dead, Unvaccinated."	Postponement by Medical Certificate.	Removal to Districts the Vaccination Officer of which has been duly apprised.	Removal to places unknown or which cannot be reached; and cases not having been found.	
1	2	3	4	5	6	8	9	10	11
Birmingham Parish ...	8,020	6,139	44	--	1,137	96	53	467	84
Aston Union (within the City)	6,302	4,263	43	—	923	115	24	622	312
King's Norton Union (within the City) ...	1,676	1,246	21	—	164	16	15	106	108
Total	15,998	11,648	108	—	2,224	227	92	1,195	504

Table of the Number of Deaths occurring in each Street in the City of Birmingham during the Year 1896.

STREETS.	Zymotic Diseases.	Other Diseases.
A		
A B Row		
Abberley Street ..		
Abbey Street, All Saints'	3	13
Abbey Street, Harborne		
Aberdeen Street ..	3	16
Ada Road	2	2
Adams Street	8	24
Adderley Road ..	5	22
Adderley Street ..	2	7
Addison Road ..		
Adelaide Street ..	3	6
Albany Road		1
Albert Road		1
Albert Street		1
Albion Street		2
Alcester Street ..	4	24
Alder Drive		
Alder Road		1
Alexandra Road ..		2
Alexandra Street ..	3	9
Alfred St., Balsall Heath	1	5
Alfred Street, St. Paul's		
Algernon Road ..		3
Alleock Street ..	4	9
Allen's Road		2
Allesley Street ..	1	3
Allison Street	1	14
Allport Street		
All Saints' Road ..	1	3
All Saints' Street ..		4
Alma Crescent ..	1	5
Alma Street		
Alston Street	2	9
Alum Rock Road ..	2	9
Ampton Road ..		1
Anderton Road ..	1	3
Anderton Street ..		12
Andover Street ..		
Angelina Street ..	8	15
Anthony Road ..	2	1
Arden Road		3
Argyle Street	4	13
Armoury Road ..	2	5
Arsenal Street ..	1	
Arthur Road, Edgbaston		
Arthur Road, Saltley ..	2	3
Arthur Street	9	33
Artillery Street ..		3
Ashford Street ..	1	4
Ashley Street	5	17
Ashted Row	1	15
Aston Road	5	19
Aston Street		6
Aston Brook Street ..	5	7
Aston Church Road ..		6
Asylum Road	2	7
Athole Street		
Atlas Road	1	1
Auckland Road ..	1	2
Augusta Street ..		2
Augustus Road ..	1	4
Austin Street		1
Avenue Road		
B		
Bacchus Road .. .	1	1
Bagot Street . ..	5	17
Bailey Street		
Baker Street	3	5
Balsall Heath Road ..	7	37
Banbury Street ..	1	4
Banks Road		1
Barford Road		8
Barford Street ..	14	36
Barker Street	1	3
Barlow's Road ..		1
Barn Street	5	18
Barnsley Road ..		
Barr Street	4	23
Barrack Street ..	1	2
Bartholomew Row ..	1	3
Bartholomew Street ..	5	6
Barwell Road	2	3
Barwick Street ..		
Baskerville Passage ..		
Baskerville Place ..		
Bath Passage		1
Bath Row	4	3
Bath Street		4
Beach Street	3	12
Beak Street		7
Beaufort Road ..	1	4
Bedford Road		3
Beech Lanes	1	2
Beechfield Road ..		6
Belcher Lane		2
Belgrave Road ..		5
Belgrave Street ..	4	11
Bell Street		
Bell Barn Road ..	10	37
Bellefield Road ..	1	3
Bellis Street		2
Belmont Passage ..	1	2
Belmont Row	1	4
Benacre Street ..	4	26
Bennett's Hill ..		3
Benson Road		7
Berkley Street ..	1	4
Berners Street ..		4
Berry Street ..	1	1
Bertram Road ..		1
Betholom Row ..		1
Birchall Street ..	2	3
Birchwood Road ..		4
Bird Lane		
Bishop Street	5	18
Bishop Street South ..		
Bishopsgate Street ..	2	19
Bissell Street	2	22
Black Pit Lane ..		
Blake Lane	1	4
Blakeland Street ..	1	3
Blews Street	8	6
Blews Street West ..	3	5
Bloomsbury Street ..	2	30
Blucher Street ..	1	5
Blythe Street	4	14
Bolton Road	12	40
Bolton Street		
Bond Street		
Bordesley Green ..	5	6
Bordesley Green Road		4
Bordesley Park Road ..	2	19
Bordesley Street ..	2	23
Bow Street	5	10
Bowyer Street ..		
Bowyer Road	1	3
Bracebridge Street ..	3	20
Bradford Street ..		22
Braithwaite Road ..		2
Branston Street ..		7
Brass Street	1	5
Brasshouse Passage ..	1	
Bread Street		1
Brearley Street ..	14	36
Brewery Street ..	1	3
Brickiln Street .		
Bridge Road		3
Bridge Street		1
Bridge Street West ..	6	34
Brighton Road ..	1	6
Bristol Road		14
Bristol Street ..	3	13
Broad Street		13
Bromford Lane ..		
Bromsgrove Street ..	2	18
Brook Road		
Brook Street		1
Brookfield Road ..	2	4
Broom Street	1	1
Browning Street ..	4	9
Brueton Street ..		1
Brunswick Road ..	3	14
Buck Street	1	2
Buckingham Street ..		12
Bull Ring		1
Bull Street, Harborne ..		3
Bull Street, Market Hall		3
Bulloek Street	2	5
Burbury Street ..	1	1
Burlington Passage ..		
Burney Lane		
Butler Street	1	
Butler Street South ..		
Butlin Street		
Byron Road		3
C		
Calthorpe Road ..		2
Cambridge Crescent ..		1
Cambridge Street ..		2
Camden Drive ..		4
Camden Grove ..	1	
Camden Street ..	9	43
Camp Hill		10
Camp Street		5
Canal Street		1
Cannon Street ..		
Cannon Hill Road ..		2
Cape Lane		
Cape Street		4
Cardigan Street ..	4	13
Carlisle Street ..	1	4
Carlton Road	2	11
Carlyle Road		3
Carnarvon Road ..		
Caroline Street ..		3
Carpenter Road ..		
Carrington Road ..		3
Carr's Lane		
Cartland Road ..	2	1
Carver Street	1	12
Castle Street		
Catheart Street ..		3
Cato Street	4	13
Cato Street North ..	1	6
Cattell Road	5	17
Cattell Grove ..		2
Cavendish Road ..		5
Cecil Street		14
Chad Road		1
Chandos Road ..	1	4
Chapel Street		4
Chapel House Street ..		
Chapman Road ..		2
Charles Road	4	7
Charles Arthur Street ..	4	14
Charles Henry Street ..	13	26
Charlotte Road ..		2
Charlotte Street ..		6
Chattaway Street ...		4

STREETS.	Zymotic Diseases.	Other Diseases.
Cheapside .. .	11	30
Cheatham Street ..	1	3
Chequers Walk ..	1	2
Cherry Street		1
Cherry Wood Road ..	4	9
Chester Street.. ..	1	5
Chesterton Road ..	3	12
Cheston Road ..		3
Chicheley Street ..		
Chiswell Road ..		2
Christ Church Passage		
Church Lane		
Church Road, Edgbaston		6
Church Road, Harborne		
Church Road, Nechells..		1
Church Road, Saltley ..		6
Church Street.. ..		2
City Road		2
Claremont Road ..		5
Clarence Road ..	1	4
Clarendon Road ..		2
Clark Street	1	18
Claverdon Street ..	1	4
Claybrook Street ..	2	1
Clayton Road		5
Clement Street ..		5
Cleve Terrace ..		
Clevedon Road ..	2	6
Clifton Road	8	28
Clissold Street ..		6
Clive Passage.. ..		
Cliveland Street ..	3	8
Clyde Street ..		6
Coleman Street ..	3	15
Coleshill Street ..	4	16
College Road		
College Street		4
Colmore Row		2
Colville Road.. ..	7	7
Commercial Street ..		1
Common Lane.. .		
Communication Row ..	1	3
Congreve Street ..		
Constance Road ..		
Constitution Hill ..	2	6
Conybere Street ..	2	18
Cook Street	1	7
Cooksey Road ..	11	23
Cope Street	1	5
Coplow Street ...	5	10
Coralie Street ..		2
Cornwall Street ..		
Corporation Street ..	1	1
Cotterill's Lane ..		
Couchman Road ..		1
Court Road		1
Court Oak Road ..		
Coventry Road ..	7	31
Coventry Street ..	3	11
Cowper Street ..	2	18
Cox Street		4
Cox Street West ..		9
Coxwell Road ..		1
Crabtree Road ..		10
Cranemore Lane ..		2
Cranemore Street ..	2	3
Cregoe Street	4	15
Crescent		2
Crompton Road ..	1	4
Cromwell Passage ..		
Cromwell Street ..	14	42
Crooked Lane		
Cuckoo Road	1	6
Cumberland Street ..		2
Curzon Street	3	5
Cuthbert Road ..	2	8
Cyril Road		4

STREETS.	Zymotic Diseases.	Other Diseases.
D		
Daisy Road		1
Dale End		2
Dalton Street		1
Darnley Road ..		1
Dart Street	1	2
Dartmouth Street ..	2	25
Darwin Street ..	9	33
Dawson Street ..		2
Dean Street		
Dearman Road	1	1
Defford Road	1	3
Denbigh Street ..	1	4
Derby Street . ..	1	6
Devon Street	3	19
Devonshire Street ..	6	19
Digbeth	3	15
Digby Street		3
Dixon Road		3
Doe Street		1
Dolman Street ..	3	12
Dolobran Road ..	2	4
Don Street	1	4
Dora Road		1
Dorset Road		
Dover Street	1	1
Dr. Johnson Passage ..		
Drayton Road.. ..		1
Drury Lane	1	3
Dryden Road		
Duchess Road.. ..	1	1
Duddeston Row ..	1	4
Duddeston Mill Road ..	3	12
Dudley Road	4	21
Dudley Street		1
Dugdale Street ..	2	6
Duke Street	2	14
Dymoke Street ..	2	18
E		
Earl Street		
Eastern Road		
Easy Row		1
Eden Place		
Edgbaston Road ..		1
Edgbaston Park Road..		
Edgbaston Street ..		3
Edmond Road.. ..		
Edmund Street ..		10
Edward Road		
Edward Street ..	5	14
Edwardes Street ..	2	11
Eldon Road		2
Elkington Street ..		4
Ellen Street	3	19
Ellis Street		4
Elvetham Road ..		
Emily Street	6	17
Emmeline Street ..		1
Enfield Road		
Erasmus Road ..	2	8
Ernest Street		
Erskine Street.. ..		3
Essex Street	2	6
Essington Street ..		13
Ethel Road		
Ethel Street		
Eva Road	3	9
Eversley Road ..	2	9
Exeter Street		
Eyre Street	1	5
F		
Factory Road		8
Falconer Road ..		3

STREETS	Zymotic Diseases.	Other Diseases.
Farm Road		2
Farm Street	12	40
Farquhar Road ..		1
Farquhar Road East ..		
Fawdry Street	1	
Fazeley Street ..	3	4
Fellows Lane		
Fisher Street	1	6
Fleet Street		
Floodgate Street ..		12
Florence Street ..		3
Ford Street	4	11
Fordrough Lane ..		1
Fordrough Street ..		
Fordroughs		
Forge Street		
Forster Street.. ..		1
Foundry Road ..		7
Fowler Street		2
Fox Street	1	1
Francis Road		3
Francis Street ..	3	24
Frank Street		1
Frankfort Street ..	4	13
Franklin Street ..	3	5
Frederick Road ..		3
Frederick Street ..		2
Freeman Road ..	3	7
Freeman Street ..		
Freeth Street	7	9
Friston Street ..	5	13
Fulham Road		
G		
Gulton Street	1	
Garbett Street ..	2	18
Garrison Lane ..	9	23
Garrison Street ..	8	9
Gas Street		
Gate Street	1	6
Geach Street	4	5
Gee Street	1	4
Gem Street	1	
George Road		4
George St., Balsall H'th	3	2
George Street, St. Paul's		2
George Street West ..	3	20
Gibb Street		4
Gillhurst Lane ..		
Gillott Road	1	6
Gladstone Road ..		4
Glebe Street	1	8
Gloucester Street ..		
Glover Road ..	1	9
Glover Street ..	3	19
Godwin Street.. ..	1	2
Golden Hillock Road ..		6
Gooch Street	1	11
Goode Street	2	8
Goodman Street ..		
Goodrick Street ..	1	3
Gopsall Street ..		1
Gordon Road		
Gordon Street		8
Gosta Green		1
Gough Road		4
Gough Street		7
Grace Road	1	7
Grafton Road		5
Graham Street ..	3	4
Grange Rd., Bordesley	1	15
Grange Rd., Harborne		1
Grant Street	1	6
Grantham Road ..		3
Granville Street ..	2	7
Gray Street		
Gray's Road		
Great Barr Street ..	1	9
Great Brook Street ..	4	15
Great Charles Street .	1	2

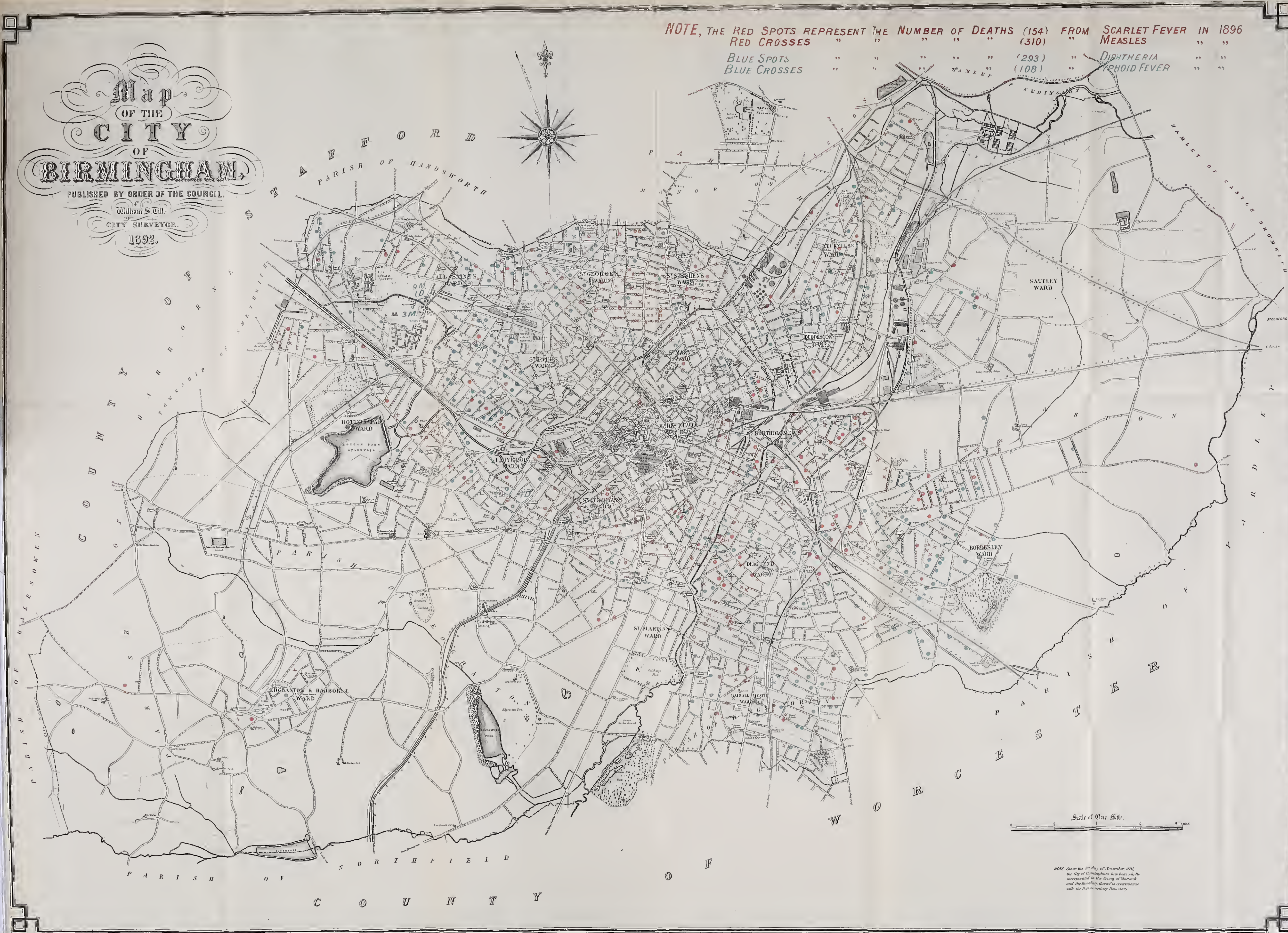
STREETS.	Zymotic Diseases.	Other Diseases.
Great Colmore Street ..	3	28
Great Francis Street ..	3	22
Great Hampton Row ..	7	22
Great Hampton Street..	1	6
Great King Street ..	9	23
Great Lister Street ..	6	19
Great Russell Street ..	7	36
Great Tindal Street ..	1	14
Green Lane	2	24
Green St., Deritend ..	1	6
Green Street, Saltley ..	1	
Greenfield Crescent ..		
Greenfield Road ..	1	11
Greenway Street ..		18
Grosvenor Road ..		
Grosvenor Row .		
Grosvenor Street ..		
Grosvenor Street West	2	27
Grove Lane		3
Grove Street ..		
Guest Street ..	1	4
Guildford Street ..	4	12
Guthrie Street ..		
H		
Haden Street	1	1
Hadley Street.. ..		
Hagley Road		8
Halberton Street ..	3	6
Hall Road		1
Hall Street	3	2
Hampden Street ..	1	1
Hampton Street ..		9
Handsworth New Road	2	
Hanley Street ..		20
Hanover Street ..		2
Harborne Lane ..		3
Harborne Road ..		4
Harding Street ..	2	2
Harford Street ..	1	3
Harold Road		2
Harrison's Road ..		1
Hart's Road		
Hatchett Street ..	9	15
Havelock Road ..	2	16
Hawkes Street ..	2	14
Hawthorn Road ..		
Heath Green Road ..	1	4
Heath St., All Saints ..	10	35
Heath St., Balsall H'th	3	4
Heath Street South ..	2	4
Heath Mill Lane ..	1	12
Heaton Street	3	14
Helena Street.. ..		2
Heneage Street ..	7	40
Henley Street	1	9
Henn's Walk	1	1
Henrietta Street ..		1
Henry St., Balsall H'h..		
Henry St., Duddeston..	7	18
Henshaw Road	6	7
Herbert Road	15	25
Hermitage Road ..		
Hertford Street ..	1	2
Hick Square		1
Hick Street	3	17
Hickman Road ..		
High Street		1
High Street, Bordesley and Deritend ..	2	20
High St., Harborne ..	4	15
High St., Saltley ..	1	6
Highfield Rd., Edgb'n..		1
Highfield Rd.,H'borne..		2
Highfield Rd., Saltley..		7
Highgate Place ..		1
Highgate Road ..	1	20
Highgate Square ..		1
Highgate Street ..	9	28
High Park Street ..		5
Hill Street		4
Hinckley Street ..		
Hingeston Street .	5	24
Hobmoor Road ..		
Hockley Hill	3	4
Hockley Street ..		4
Holborn Hill	1	10
Holland Street ..	1	6
Holliday Street ..	2	7
Hollier Street	2	5
Holloway Head ..	4	2
Holly Road	1	2
Holt Street	5	11
Homer Street		2
Hooper Street.. ..	1	1
Hope Street	7	34
Horse Fair ..		5
Hospital Street ..	12	50
Howard Street ..	2	7
Howe Street	2	8
Hubert Street ..		
Hugh Road	1	3
Hunnpage Road ..	1	2
Hunter's Road ..		
Hunter's Vale		
Hurst Street	3	6
Hutton Road		
Hutton Street		12
Hyde Road		3
Hylton Street		1
I		
Icknield Square ..	5	13
Icknield Street ..	7	20
Icknield Port Road ..	12	36
Inge Street	2	4
Ingleby Street ..	2	7
Inkerman Street ..	2	17
Irving Street	14	27
Islington Row.. ..		1
Ivy Lane		2
J		
Jakeman's Road ..	1	5
Jakeman's Walk ..	1	3
Jamaica Row		1
James Street		1
James Turner Street ..	1	7
James Watt Street ..		2
Jenkins Street ..		
Jennens Row		5
Jersey Road		1
John Bright Street ..		6
John's Road		
Johnson Street ..	2	6
Johnstone Street ..	1	2
K		
Keeley Street		1
Kelynge Street ..	6	15
Kendal Road		3
Kenelm Road		1
Kent Street	2	4
Kent Street North ..	2	12
Kenyon Street ..	1	5
Key Hill	1	4
King St., Balsall Heath	1	
King Street, Bordesley..		1
King Alfred's Place ..		1
King Edward's Place ..		1
King Edward's Road ..	3	16
Kingsecte Road.. ..		1
Kingsley Road ..		1
Kingston Road ..		6
Kingswood Road ..		2
Knutsford Street ..	1	5
Kyott's Lake Road ..		
Kyrwick's Lane ..		7
L		
Ladypool Road ..		22
Ladywell Passage ..		1
Ladywell Walk ..		
Ladywood Road ..	2	17
Lancaster Street ..	1	14
Landor Street	1	4
Langley Road ..	3	7
Lansdowne Street ..	2	6
Larches Street ..		8
Latimer Street ..	9	17
Lawden Road ..	3	9
Lawley Street ..	3	24
Lawrence Street ..	1	7
Leach Street		1
Leamington Road ..	1	6
Lease Lane	2	2
Ledsam Street ..	2	22
Lee Bank Road ..	6	26
Lee Crescent .. .		6
Lee Mount		1
Leek Street		
Lees Street		10
Legge Lane		2
Legge Street	1	8
Leigh Road		1
Lench Street		
Lennox Street ..	3	15
Leonard Street ..		
Leopold Street ..	3	16
Leslie Road		
Lilly Green	3	1
Lime Grove		
Lingard Street ..	1	10
Link Road		1
Lionel Street		1
Lister Street	1	4
Little Ann Street ..	2	4
Little Barr Street ..		9
Little Bow Street ..		
Little Broom Street ..		
Little Edward Street ..		1
Little Francis Street ..		1
Little Green Lane ..	2	30
Little King Street ..		8
Little Shadwell Street..		1
Liverpool Street ..	1	5
Livery Street		3
Lloyd Street		
Lodge Rd., All Saints ..	4	31
Lodge Road, Harborne..	1	5
Lombard Street ..	1	10
Long Acre	14	34
Long Street	1	10
Longbridge Road ..		3
Longmore Street ..		6
Lonsdale Road ..		3
Lord Street	3	3
Lordswood Road ..		2
Lonisa Street		1
Love Lane		3
Loveday Street ..	3	4
Lowe Street		2
Lower Dartmouth Street		8
Lower Darwin Street ..	1	1
Lower Edwardes Street		3
Lower Essex Street ..	2	15
Lower Fazeley Street ..	2	6
Lower Hurst Street ..	1	11
Lower Hurst Street East	2	
Lower Loveday Street..		3
Lower Priory ..		
Lower Temple Street ..		
Lower Tower Street ..	7	29
Lower Trinity Street ..		4
Loxton Street.. ..		2
Ludgate Hill	1	2

STREETS.	Zymotic Diseases	Other Diseases
Ludgate Hill Passage ..		
Lupin Street	5	20
Lyttelton Road ..		
M		
Macdonald Street ..	1	4
Main Street	2	8
Malthouse Lane ..		2
Malvern Street ..		6
Malvern Hill Road ..		3
Manchester Street ..	4	4
Manor Road		
Margaret Road ..		1
Margaret Street ..		
Mark Lane		
Market Street		2
Marroway Street ..		7
Marshall Street ..		7
Marshall Street South ..	1	4
Martineau Street ..		
Mary St., Balsall Heath	4	24
Mary Street, St. Paul's		3
Mary Ann Street ..		1
Masshouse Lane ..		2
Maxstoke Street ..		
Meadow Road		
Medlicott Road ..		1
Melville Road		
Meriden Street ..		14
Metchley Lane ..	1	8
Metchley Park Road ..		1
Metropolitan Road ..		1
Midland Street ..	1	1
Miles Street	4	14
Milk Street	4	12
Mill Lane, Harborne ..		
MillLane, St. Martin's	1	3
Mill Lane, Saltley ..		10
Mill Lane, Ward End ..		
Mill Street	1	2
Miller Street ..	8	24
Mills Lane		1
Milton Street		9
Milward Street ..	2	9
Minories		
Mont Lane		1
Mont Row		
Moilliett Street ..	2	11
Moland Street	4	25
Mole Street	2	8
Mona Road		1
Montague Road ..		1
Montague Street ..	1	2
Montgomery Street ..	4	6
Montpellier Street ..	1	3
Monument Road ..	6	32
Moor Street	1	9
Moore's Row		
Moorsom Street ..	2	13
Moreton Street ..		4
Morville Street ..	2	21
Moseley Road	3	30
Moseley Street ..	10	26
Mostyn Road		3
Mott Street	3	12
Mount Pleasant, B'H'th		2
Mount Pleasant, B'ley ..		1
Mount Street	4	8
Muntz Street	2	15
Musgrave Road ..	3	8
N		
Navigation Street ..		2
Nechells Park Road ..	2	26
Nechells Place ..	2	10
Needham Street ..		1
Needless Alley ..		
Nelson Street ..	3	15
New Street		2
New Bartholomew St. ..	2	6
New Bond Street ..	1	1
New Brunswick Road ..		1
New Canal Street ..	2	14
Newdegate Street ..		4
Newhall Hill		6
Newhall Street ..	2	16
New Clifton Road ..		
New John Street ..	8	20
New John Street West ..	9	49
New Market Street ..		
New Meeting Street ..		
Newport Road ..		3
New Spring Street ..	3	13
New Summer Street ..	11	28
Newton Road	1	
Newton Street ..		
Newtown Row ..	12	24
Nile Street		
Nineveh Road		
Noel Road		
Norfolk Road		
Norman Street ..	2	9
Northampton Street ..		
North Road		12
Northbrook Street ..	1	5
Northfield Road ..		1
Northumberland Street	1	3
North Warwick Street ..		
Northwood Street ..		9
Norton St., All Saints		3
Norton St., Balsall H'th	1	12
Norwood Road ..	1	2
Nova Scotia Street ..	1	2
Nursery Road		
O		
Oakfield Road ..		1
Oakley Road		
Old Square		
Old Church Road ..		
Old Cross Street ..		1
Oldfield Road	9	11
Old Meeting Street ..		
Oliver Road		2
Oliver Street .. .		2
Ombersley Road ..	1	9
Oozells Street		2
Oozells Street North ..	1	
Orchard Road		3
Orford Road	1	3
Ormond Street ..	2	9
Osler Street		17
Oughton Place ..		4
Owen Street	1	6
Oxford Street		3
Oxygen Street		6
P		
Paddington Street ..	4	13
Pakenham Road ..		2
Palmer Street	1	8
Palmerston Road ..		1
Parade		1
Paradise Street ..		1
Park Hill Road ..		1
Park Lane		1
Park Road, All Saints	11	37
Park Road, Harborne ..	1	6
Park Road, Saltley ..		4
Park Street	1	6
Park Hill Road ..		
Parker Street		4
Parliament Street ..	3	11
Paternoster Row ..		
Paxton Road	2	3
Pebble Mill Road ..		
Peel Street	2	14
Pembroke Road ..		
Penn Street, Deritend ..		5
Penn Street, Duddeston		4
Perrot Street .. .	6	4
Pershore Road .	1	15
Pershore Street	3	11
Phillip Street .		
Pickford Street ..	1	1
Piddock Street ..	1	3
Pigott Street	1	2
Pinfold Street		
Pitney Street		
Pitsford Street ..		4
Pitt Street		
Plough & Harrow Road		
Plume Street		
Pope Street	5	15
Poplar Avenue ..		
Poplar Road	1	5
Porchester Street ..		2
Porthope Road ..		4
Portland Road ..	1	
Potter Street		4
Powell Street		3
Prescott Street ..	4	18
Price Street	2	7
Priestley Road ..	1	4
Prince Albert Street ..	2	5
Princes Row		
Princes Street		1
Princess Road		3
Princess Street ..		3
Princip Street	2	3
Priory Road, B'lsll H'th		2
Priory Road, Edgbaston		1
Pritchatt's Road ..		
Pritchett Street ..	4	25
Proctor Street	2	12
Prospect Row		1
Q		
Queen Street .. .	1	8
R		
Radnor Street	1	2
Raglan Road		
Railway Ter., Duddeston	1	10
Railway Ter., Nechells ..	5	5
Ralph Road		1
Ramn Street	1	7
Ravenhurst Road ..		5
Ravenhurst Street ..	1	13
Rawlins Street ..	1	3
Rea Street	1	14
Rea Street South ..	1	7
Regent Parade ..		
Regent Place		3
Regent Road		1
Regent Row		2
Regent Street		
Regent Park Road ..	2	2
Reginald Road ..	1	11
Reservoir Retreat ..		1
Reservoir Road ..	1	1
Richard Street ..	4	16
Richmond Hill Road ..		1
Ridley Street .. .		3
River St., Balsall Heath	2	4
River St ,St. Barthol w's	3	2
Robert Road		
Rocky Lane	1	9
Rodway Street ..	2	2
Rope Walk		

STREETS.	Zymotic Diseases.	Other Diseases.
Rosalie Street	1	1
Roshven Road ..	1	3
Rotton Park Road ..	1	3
Rotton Park Street ..		1
Rowland Street ..	1	2
Rupert Street.. ..	3	13
Russell Street		
Ruston Street	1	5
Ruston Street North ..	1	18
Rutland Road		
Ryder Street	2	3
Ryland Road	5	11
Ryland Street.. .		8
S		
Salop Street		1
Saltley Road . ..	3	16
Saltley Street	1	6
Sampson Road ..		6
Sampson Road North ..	1	6
Sand Pits	1	3
Sand Street		
Sandon Road		
Sandy Lane	4	10
Sarah Street		
St. Andrew's Road ..		
St. Augustine's Road ..		
St. Clement's Road ..		11
St. Andrew's Road ..	12	25
St. George's Place ..		2
St. George's Street ..	5	11
St. James' Place ..	1	2
St. James' Road ..		
St. James' Street ..	1	5
St. John's Rd., B'll H'th		2
St. John's Rd., H'borne		
St. Luke's Road ..	1	20
St. Mark's Street ..	6	15
St. Martin's Lane ..		1
St. Martin's Place ..		3
St. Martin's Row ..		1
St. Martin's Street ..	2	10
St. Mary's Road ..		
St. Mary's Row ..		1
St. Mary's Street ..		6
St. Oswald's Road ..		
St. Paul's Road ..		6
St. Paul's Square ..		
St. Peter's Place ..		2
St. Philip's Place ..		
St. Stephen's Street ..		
St. Vincent Street ..	2	14
Scholefield Street ..	3	19
Scotland Street ..		2
Scott Street		1
Sefton Road		1
Serpentine Road ..		3
Severn Street	1	4
Seymour St.,B'sall H'th	1	2
Seymour St , St. Barth.		
Shadwell Street .	1	4
Shakespeare Road .	3	14
Sheep Street	3	9
Sheepcote Lane ..	2	10
Sheepcote Street ..		6
Shefford Road ..	1	5
Shenstone Road ..		
Sherborne Street ..	6	20
Sherbourne Road ..	7	26
Sherlock Street ..	4	17
Sir Harry's Road ..		
Skinner Lane	2	3
Skinner Street .	2	2
Sladefield Lane ..		
Slaney Street		2
Sloane Street	1	15
Slough Lane		
Smallbrook Street ..		5
Smith Street, St. George's	4	21
Smith Street, Duddeston		6
Smithfield Passago ..	1	3
Smithfield Street ..		
Snow Hill	2	7
Soho Road .. .		
Somerset Road ..		1
Somerset Street ..		10
Somerville Road ..		6
South Road	1	3
South Street	1	
Southgate		
Spark Street		1
Speaking Stile Walk ..		2
Speedwell Road ..		1
Spencer Street ..		1
Spicecal Street		1
Spon Terrace		1
Spooner Street ..	1	8
Spring Hill	1	13
Spring Hill Passage ..		5
Spring Road		6
Spring Street		6
Spring Vale		1
Springfield Street ..	2	9
Stafford Street ..		5
Stanhope Street ..	4	9
Staniforth Street ..	3	12
Stanley Road		2
Stanmore Road ..		2
Station Road, Harborne		
Station Road, Rotton Pk		
Station Street... ..		1
Stechford Lane ..		
Steelhouse Lane ..	1	5
Stella Street		4
Stephenson Place ..		1
Stephenson Street ..		
Steward Street ..	5	12
Stirling Road ..		1
Stoke Street	3	12
Stone Yard		4
Stoney Lane	1	4
Stour Street	3	11
Stratford Place ..		1
Stratford Road ..		8
Stratford Street ..		2
Strensham Road ..		2
Stuart Street		2
Suffolk Street.. ..		12
Summer Lane.. ..	12	31
Summer Road... ..		12
Summer Row .. .		1
Summer Street ..		1
Summerfield Crescent..	1	1
Summerfield Road ..		
Summer Hill Road ..	1	
Summer Hill Street ..		6
Summer Hill Terrace ..		2
Sun Street	1	12
Sun Street West ..	3	5
Sutton Street	2	1
Swallow Street ..		1
Sydenham Road ..	2	7
Sydney Road		4
T		
Talbot Street		8
Talfourd Street ..	6	11
Taunton Road	1	1
Taylor Street	4	5
Temple Row		
Temple Row West ..		
Temple Street.. ..		1
Templefield Street ..	2	4
Tenby Street		4
Tenby Street North ..	1	2
Tennal Road	1	2
Tennant Street ..	2	17
Tennyson Road ..		1
Theodore Street ..		8
Theresa Road		2
Thimble Mill Lane ..	6	6
Thomas St., B'sall H'th	1	10
Thomas St., Deritend ..	1	2
Thorp Street	2	4
Tillingham Street ..	2	
Tilton Road		2
Tindal St., Balsall H'th		2
Tower Street	7	30
Trafalgar Road ..		1
Trent Street	2	5
Trevor Street	3	14
Trinity Terrace ..		1
Tudor Street	6	6
Turk's Lane		
Turner Street		14
U		
Unett Street ..	9	26
Union Passage ..	1	
Union Street		1
Union Terrace ..		
Upper Cox Street ..	1	2
Upper Dean Street ..		2
Upper Gough Street ..	3	5
Upper Highgate Street	5	13
Upper Marshall Street..	1	2
Upper Mary Street ..		
Upper Mill Lane ..		
Upper Priory		1
Upper Ryland Road ..	1	6
Upper Trinity Street ..		6
V		
Varna Road		6
Vaughton Street ..	2	13
Vaughton Street South	1	6
Vauxhall Grove ..		1
Vauxhall Road ..	5	22
Vauxhall Street .		2
Ventnor Road.. ..	1	2
Vere Street	1	7
Vernon Road		
Vesey Street		
Viaduct Street.. ..		
Vicarage Rd.,Edgbaston		
Vicarage Rd , H'borne..		
Victoria Grove ..	1	1
Victoria Road ..		
Victoria St., B'sall H'th	1	5
Victoria St., Bordesley		5
Villa Street	2	4
Villiers Street	1	7
Vincent Crescent ..		4
Vincent Parade ..		3
Vincent Street ..	2	18
Vine Street		
Vittoria Street . ..		3
Vyse Street .		3

STREETS.	Zymotic Diseases.	Other Diseases.
W		
Walford Road	1	6
Walter Street	2	7
Ward End		12
Ward Street	4	7
Warner Street		3
Warren Road		
Warstone Lane ..	7	17
Warstone Parade East ..	1	
Warwick Street ..	3	14
Washington Street ..	3	6
Washwood Heath Road		11
Water Street		2
Waterloo Street ..		1
Waterworks Road ..	1	5
Watery Lane	12	31
Watts Road		1
Waverley Road ..		2
Weaman Row		
Weaman Street ..	1	11
Well Lane		
Well Street	1	19
Wellesley Street ..	3	11
Wellington Rd., Edg'ton	1	
Wellington Rd., H'borne		3
Wellington Street ..	4	15
Wenman Street ..		8
Westbourne Road ..		
Western Road		
Westfield Road ..		1
Westley Street ..		1
Weston Street	1	
Wharf Lane		1
Wharf Street	4	6
Wharton Street ..		
Wheeler Street ..	4	20
Wheeley's Lane ..		1
Wheeley's Road ..		4
Whitby Road	2	1
White Road		11
White Lion Passage ..		
White Street		
Whitehall Road ..	1	7
Whitmore Road ..	2	5
Whitmore Street ..	4	10
Whittall Street ..		3
Wiggin Street ..	2	4
William Street, Deritend		2
William St., St. Thomas'	5	17
William Street, Saltley	1	3
William Street North ..		5
William Edward Street	2	6
William Henry Street ..		3
Willis Street	3	12
Willow Avenue ..		
Willow Crescent ..		
Willow Road		5
Wilton Street	1	3
Windmill Street ..		2
Windsor Street ..	11	26
Winson Green Road ..	3	16
Winson Street... ..	1	9
Witton Street		8
Wolseley Street ..	2	11
Wood Lane		1
Wood Street		
Woodbourne Road ..		
Woodcock Street ..	2	6
Woodfield Road ..	1	4
Woodville Road ..		
Worcester Street ..	1	
Wordsworth Road ..		3
Wrentham Street ..	1	11
Wright Road	1	6
Wright Street	3	8
Wrottesley Street ..		
Wyndcliffe Road ..		1
Wyndham Road ..		4
Wynn Street	3	10
X		
Y		
Yardley Road		
Yateley Road		
Yew Tree Road ..		
York Passage		
York Road		3
York Street, Harborne		3
York Street, St. Mary's		
Z		
AT INSTITUTIONS.		
Children's Hospital ..	15	58
Queen's Hospital ..	5	180
General Hospital ..	21	349
City Hospital	133	7
Workhouse	19	636
City Asylum		93
St. Joseph's Home ..		29
Gaol	1	3
Eye Hospital ..		2
Blind Institution ..		
Homœopathic Hospital ..		10
Orthopædic Hospital ..		2
Witton Hospital ...	4	
ADDENDA.		
Canals		15
Railways		6
Not located		2
TOTALS ..	1799	8606

Grand Total .. 10405



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REPORT

ON

ADULTERATION.

City Analyst's Laboratory,
The Council House, Birmingham,
March 9th, 1897.

To the Health Committee.

Mr. Chairman and Gentlemen,

I beg to report that during the year 1896 I received for analysis 1,138 samples of food, drink, and drugs, of which 1,118 were obtained under the Sale of Food and Drugs Acts, and 20 under the Margarine Act. Eleven samples were purchased by Mr. Parker, Inspector of Nuisances, and the remainder, with two exceptions, by the Food Inspector, Police-sergeant H. I. Jones. Analyses of food, drink, and drugs.

The following table gives particulars of the articles received and the results of the analyses: —

Table A.—Total Samples.

	No. of Samples Analysed.	Number found to be Genuine.	Number found to be Adulterated.
Milk	470	382	88
Butter	238	177	61
Flour	72	72	0
Coffee	53	48	5
Confectionery	35	19	16
Granulated Sugar	27	27	0
White Pepper	26	26	0
Bread	21	21	0
Compound Tincture of Benzoin	13	11	2
Olive Oil	13	13	0
Vinegar	12	12	0
Scotch Whiskey	12	10	2
Demerara Sugar	12	12	0
Ipecacuanha Wine	11	4	7
Spirit of Nitrous Ether	7	6	1
Quinine Wine	6	5	1
Spirit of Ether	6	5	1
Spirit of Camphor	6	5	1
Tincture of Rhubarb	6	6	0
Rum	6	6	0
Ale	6	6	0
Beer	6	6	0
Bacon	6	2	4
Jam	6	1	5
Linseed Meal	5	4	1
Tincture of Iodine	4	2	2
Oatmeal	4	4	0
Sausage	4	2	2
Thick Cream	4	1	3
Lard	4	4	0
Tincture of Hop	3	3	0
Ham and Tongue	3	0	3
Clotted Cream	2	0	2
Pork Pie	2	1	1
German Sausage	2	0	2
Sheffield Polony	1	0	1
Pickled Beef	1	1	0
Pickled Tongue	1	0	1
Pickling Salt	1	1	0
Chicken, Ham and Tongue	1	0	1
	1118	905	213
Margarine	20		
	1138		

I.—FOOD AND DRUGS ACTS.

Percentage of adulteration.

Of the 1,118 samples examined, 213, or 19 per cent. were found to be adulterated. If the samples of food which were condemned because they contained boric or salicylic acid be excluded, 125, or 11 per cent. of the articles analysed, were adulterated, a percentage of adulteration identical with that of the previous two years. As no action had been taken in Birmingham with regard to foods adulterated with preservatives before last year, and as that action is of a limited extent, I shall use the lower percentage of adulteration for comparison with previous years.

I propose, in the present Report, to give tables showing the variation in the amount of adulteration which has taken place in Birmingham during the last 24 years, or since the passing of the Adulteration Act, and also in London and in the whole of England and Wales. Here, also, I shall use the lower percentage of adulteration because very few samples of food outside this City have been condemned on account of the presence of preservatives, and, therefore, if borated samples were included in the percentage of adulteration for Birmingham, the comparisons made might be misleading.

Proportion of samples to population.

Some years ago the Local Government Board considered that at least one sample of food should be analysed annually for every 1,000 of the population. Last year the Parliamentary Committee on Food Products Adulteration reported that "It is greatly to be desired that a proportion of samples much in excess of one sample per annum for every 1,000 of the population should be taken in the district of every local authority," and "A local authority would do well to increase the number of samples taken on their behalf from time to time until the number of adulterated samples found in those taken falls below the proportion which may be regarded as not unsatisfactory."

In order to show how far Birmingham conforms to the above standard, the mean population for each period has been divided by the average number of samples examined in that period, and the results put down in the following tables. For comparative purposes similar results have been calculated for the district now under the control of the London County Council and for the whole of England and Wales. The data for these calculations have been obtained from the annual reports of the Local Government Board and the Registrar General.

The division into five-year periods is that adopted in the Local Government Board reports. Comparative figures for several years cannot be given, as the Report for 1896 is not yet published, and the reports of public analysts were not summarised before 1876, owing to the few appointments then made.

TABLE B.—TOTAL SAMPLES UNDER THE FOOD AND DRUGS ACTS. Total samples.

YEARS.	BIRMINGHAM.			LONDON.		ENGLAND & WALES.	
	Samples per year.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.
1873-76	83	4395	47	829*	12*	2443*	18*
1877-81	175	2219	25	766	13	1520	16
1882-86	616	666	16	695	14	1237	14
1887-91	835	508	13	603	14	1060	12
1892-96	1070	460	12	509†	15†	781†	11†
1892	967	500	14	581	17	906	12
1893	1004	486	13	542	17	799	13
1894	1129	436	11	508	14	761	10
1895	1130	440	11	432	13	691	9
1896	1118‖	448	11§	‡	‡	‡	‡

* 1876 only. † 1892-95 only. ‡ Not yet available.
§ 19 per cent. if foods adulterated with preservatives are included.
‖ Besides these, twenty samples were taken under the Margarine Act.

The above table shows that nearly half the samples examined in Birmingham during the first period were adulterated, that a quarter of those analysed in the second period were falsified, and that during the last five years only one-eighth of those obtained were condemned. It will be noticed that during the earlier periods the percentage of adulteration here was much higher than in London, or England and Wales as a whole. This may be partly due to the small number of samples taken in Birmingham being articles then particularly liable to be adulterated as milk, tea, and spirits. At the present time this City has a percentage of adulteration slightly higher than England and Wales, and slightly lower than London. It will be observed that in Birmingham for the last period one sample was analysed for every 460 of the population, against one sample for 509 and 781 persons in London and England and Wales respectively.

MILK.

Out of the 470 samples examined, 88, or 19 per cent. were certified to be adulterated; 23 of these were condemned because of the presence of boric acid; if these samples be excluded, 65, or 14 per cent. were defective. In addition to the above, 65 milks were of such low quality that they did not contain 12 per cent. of solid matter. Some of them were possibly genuine milks obtained from cows not properly fed, or that were too old to be milked, but in many cases small amounts of water or skimmed milk had probably been added. If a standard were officially fixed for the quality of milk, and all samples below that standard were considered adulterated unless the cow-keeper could prove that his cows were giving milk of that low quality, the prevention of these fraudulent additions would be very much facilitated. Milk.

Milk—(*continued*).

Twenty-seven milks were adulterated with water, the largest amount being 47 per cent. This milk was taken at the Railway Station from a farmer's churn; a sample taken at the same time from another of his churns showed 32 per cent. of adulteration. As several milk dealers had been summoned for selling milk obtained from him, the £20 fine inflicted was not excessive.

Part of the fat was deficient in 26 samples of milk, in one case only half of the proper amount being present; 12 milks contained both too much water and too little fat. Eleven samples of milk during the year were found to have been artificially coloured, probably with an aniline dye. Six of them were either creamed or watered, seven were of low quality, one contained boric acid, and only one was of good quality. It is

Coloured Milks.

possible that the milkmen added annatto or "butter colouring" to the milk, and that the annatto used had been adulterated with aniline dye. Although the quantity of colouring matter was very small, its addition is objectionable and intended to impart a fictitious richness, or to cover adulteration, as shown by these samples.

At the request of your Committee, all samples of milk received since April have been examined for the presence of

Boric Acid.

boric acid, and in 30 cases it has been detected. Seven of these were otherwise adulterated, seven more were of low quality, and one was coloured. The quantity found varied from 10 to 70 grains per gallon of milk. Prosecutions were ordered by your Committee, and convictions obtained for selling milks containing 60 and 65 grains of boric acid per gallon. One of these milks was of good, the other of average quality. Further reference will be made to the subject later on in the report.

The samples of milk may be divided into two classes, viz., those obtained from wholesale dealers and those which were sold retail; 25 per cent. of the former class and 34 per cent. of the latter, were either adulterated or of low quality.

Fines.

Forty-four vendors of adulterated milk were fined sums varying from 1s. to £20; the average of the fines was £1 13s. 0d.; last year the average was £1 6s. 0d. Particulars of these samples are here given.

Adulterated Milk.

NO.	DATE.	REMARKS.
19	Jan. 8th	Adulterated with 9% of water and deprived of 14% of its fat. Ordered to pay costs, 1s.
21	" 8th	Adulterated with 10% of water. Fined 10s. and 8s. costs.
23	" 8th	Adulterated with 26% of water. Fined 10s. and 8s. costs.
25	" 8th	Adulterated with 16% of water. Fined 10s. and 8s. costs.
35	" 10th	Deprived of 16% of its fat and artificially coloured. Cautioned by Health Sub-Committee.
36	" 10th	Deprived of 25% of its fat. Fined £2 and 8s. costs.
40	" 10th	Deprived of 23% of its fat. Cautioned by Health Sub-Committee.

NO.	DATE.	REMARKS.	
41	Jan. 10th	Deprived of 19% of its fat. Cautioned by Health Sub-Committee.	Adulterated Milk—(*continued*)
74	" 23rd	Adulterated with 36% of water. Fined £1 and 9s. costs.	
75	" 23rd	Deprived of 15% of its fat. Cautioned by Health Sub-Committee.	
126	Feb. 14th	Adulterated with 7% of water and deprived of 5% of its fat. Fined £1 and 8s. costs.	
130	" 14th	Adulterated with 6% of water and deprived of 7% of its fat. Fined 10s. and 8s. costs.	
131	" 14th	Deprived of 23% of its fat. Fined 10s. and 8s. costs.	
134	" 14th	Deprived of 40% of its fat. Ordered to pay costs, viz., 4s.	
156	" 27th	Deprived of 19 % of its fat. Cautioned by Health Sub-Committee.	
179	Mar. 2nd	Deprived of 19 % of its fat. Cautioned by Health Sub-Committee.	
182	" 3rd	Deprived of 26% of its fat. Fined £1 and £2 costs.	
183	" 3rd	Deprived of 16 % of its fat. Cautioned by Health Sub-Committee.	
218	April 8th	Adulterated with 11% of water. Fined 10s. and 8s. costs.	
237	" 14th	Adulterated with 5% of water. Cautioned by Health Sub-Committee.	
238	" 14th	Adulterated with 6% of water. Cautioned by Health Sub-Committee.	
239	" 14th	Adulterated with 14% of water. No prosecution owing to informality in taking the sample at the railway station.	
268	" 20th	Deprived of 31% of its fat. Fined 5s. and 9s. costs.	
269	" 20th	Adulterated with 10% of water and deprived of 13% of its fat. Fined £2 and 9s. costs.	
271	" 20th	Deprived of 39% of its fat. Fined 10s. and 10s. costs.	
307	" 30th	Adulterated with about 70 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
308	" 30th	Deprived of 30% of its fat. Fined £1 and 8s. costs.	
311	" 30th	Adulterated with 10% of water and deprived of 10% of its fat. Fined £3 and 9s. costs.	
317	May 4th	Deprived of 22% of its fat. Fined £1 and 60s. 6d. costs.	
338	" 6th	Adulterated with about 35 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
363	" 14th	Deprived of 34% of its fat. Fined £5 and 19s. costs.	
365	" 14th	Adulterated with 9% of water, and deprived of 13% of its fat. Fined £1 and 25s. 6d. costs. Same vendor as No. 239.	
368	" 19th	Deprived of 27% of its fat. Fined £3 and 8s. costs.	
372	" 19th	Adulterated with 7% of water, deprived of 10% of its fat, and artificially coloured. Fined £2 and 8s. costs.	
373	" 19th	Deprived of 35% of its fat. Fined £2 and 8s. costs.	
374	" 19th	Deprived of 17% of its fat. Cautioned by Health Sub-Committee.	
377	" 19th	Deprived of 26% of its fat. Fined £1 and 8s. costs.	
462	June 19th	Adulterated with about 20 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
463	" 19th	Adulterated with about 10 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	

	NO.	DATE.	REMARKS.
Adulterated Milk— *(continued).*	464—	June 19th—	Adulterated with about 25 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	470—	" 24th—	Adulterated with about 15 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	476—	" 24th—	Adulterated with about 30 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	496—	" 30th—	Adulterated with about 60 grains of boric acid per gallon, and artificially coloured. Cautioned by Health Sub-Committee.
	500—	" 30th—	Deprived of 23% of its fat. Fined 10s. and 8s. costs.
	503—	" 30th—	Adulterated with about 15 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	543—	July 9th—	Adulterated with 6% of water Cautioned by Health Sub-Committee.
	559—	" 13th—	Adulterated with about 20 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	561—	" 13th—	Deprived of 40% of its fat. Fined 5s. and 8s. costs.
	573—	" 16th—	Adulterated with 11% of water and deprived of 16% of its fat. Fined 5s. and 8s. costs.
	575—	" 16th—	Adulterated with about 40 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	578—	" 16th—	Adulterated with about 20 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	581—	" 20th—	Adulterated with 16% of water. Fined £2 and 12s. costs.
	582—	" 20th—	Adulterated with 14% of water. Fined 5s. and 8s. costs.
	584—	" 20th—	Adulterated with 8% of water and about 70 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	592—	" 21st—	Adulterated with 7% of water and deprived of 13% of its fat. Fined 10s and 11s costs.
	670—	Sep. 15th—	Adulterated with 6% of water. Cautioned by Health Sub-Committee.
	692—	" 18th—	Adulterated with about 10 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	697—	" 18th—	Adulterated with 5% of water and about 20 grains of boric acid per gallon. Fined £1 and 8s. costs.
	698—	" 18th—	Adulterated with 15% of water. Fined £1 and 8s. costs.
	699—	" 18th—	Deprived of 23% of its fat and artificially coloured. Ordered to pay 4s. costs.
	700—	" 18th—	Deprived of 50% of its fat, and contained about 20 grains of boric acid per gallon. Fined £1 and 8s. costs.
	714—	" 22nd—	Adulterated with about 60 grains of boric acid per gallon. Fined 1s. and 8s. costs.
	717—	" 22nd—	Adulterated with about 10 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	724—	" 22nd—	Adulterated with about 50 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	725—	" 22nd—	Adulterated with about 50 grains of boric acid per gallon. Cautioned by Health Sub-Committee.
	755—	Oct. 2nd—	Adulterated with 4% of water and about 60 grains of boric acid per gallon. Vendor absconded.
	756—	" 2nd—	Deprived of 35% of its fat. Fined £1 and 8s. costs.
	759—	" 2nd—	Adulterated with 6% of water and deprived of 12% of its fat. Fined £2 and 8s. costs.

NO.	DATE.	REMARKS.	
763	Oct. 2nd	Adulterated with about 25 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	Adulterated Milk— (*continued*).
783	„ 6th	Adulterated with about 15 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
785	„ 6th	Adulterated with 11% of water. Fined £1 and 8s. costs.	
786	„ 6th	Adulterated with about 65 grains of boric acid per gallon. Fined 10s. and 8s. costs.	
787	„ 6th	Adulterated with about 45 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
789	„ 6th	Adulterated with about 10 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
820	„ 15th	Adulterated with 14% of water. Fined £2 and 9s. costs.	
821	„ 15th	Adulterated with 14% of water. Fined 1s.	
827	„ 15th	Adulterated with 12% of water. Fined 10s. and 8s. costs.	
828	„ 15th	Adulterated with about 15 grains of boric acid per gallon. Cautioned by Health Sub-Committee.	
830	„ 15th	Adulterated with 13% of water. Fined 1s.	
896	Nov. 2nd	Adulterated with 47% of water. Fined £20 and 16s. 6d. costs.	
897	„ 2nd	Adulterated with 32% of water. Ordered to pay 13s. 6d. costs.	
1064	Dec. 10th	Deprived of 17% of its fat. Cautioned by Health Sub-Committee.	
1091	„ 15th	Adulterated with 21% of water and deprived of 11% of its fat. Fined £3 and 9s. costs.	
1092	„ 15th	Adulterated with 9% of water. Cautioned by Health Sub-Committee.	
1094	„ 15th	Adulterated with 9% of water. Cautioned by Health Sub-Committee.	
1095	„ 15th	Adulterated with 4% of water. Cautioned by Health Sub-Committee.	
1099	„ 15th	Adulterated with 23% of water and deprived of 6% of its fat. Fined £3 and 8s. costs.	
1101	„ 15th	Adulterated with 18% of water. Fined £3 and 9s. costs.	

Table C.—Milk.

Years.	Birmingham.			London.		England & Wales	
	Samples per year.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.
1873-76	28	13104	54	*	*	*	*
1877-81	56	6908	54	2359	25	4122	21
1882-86	184	2225	31	1798	23	2988	17
1887-91	206	2057	19	1427	22	2499	13
1892-96	354	1391	16	1172†	22†	1875†	12†
1892	308	1570	19	1392	23	2157	13
1893	327	1495	19	1268	26	1935	15
1894	340	1448	10	1192	21	1844	12
1895	325	1528	18	941	19	1660	11
1896	470	1066	14‡	*	*	*	*

* Not available. † 1892-95 only. ‡ 19 per cent. if Milks adulterated with boric acid are included.

Milk—(*continued*).

The above table shows that a much larger number of samples of milk have been analysed during the year than in any previous twelve months, and that the ratio now is nearly that of one sample for every 1,000 of the population. The proportion of adulterated samples during the last five years, viz., 16 per cent., though far from satisfactory, is yet a great improvement on the earlier periods when I had to condemn half of the samples received. London is still worse in milk adulteration, as 22 per cent. of the samples analysed in the four years were adulterated, and very little improvement is shown during the quinquennial periods given in the table. The figures for England and Wales as a whole show 21 per cent. of adulteration for the first quinquenniad, and 12 per cent. for the last period.

Butter.

Butter.

Of the 238 samples of butter examined, 21, or 9 per cent., were found to be adulterated with foreign fat. These do not include samples taken under the Margarine Act, to which reference is made below. In most cases, 65 to 90 per cent. of adulterant was present, or margarine had been substituted for butter, either by the retailer or by the wholesale dealer who supplied him. Sample No. 46 was a notable example of the latter class, and the magistrates showed their appreciation of the gravity of the offence by fining the wholesale dealer £15 and costs. Two samples were certified as adulterated with small amounts of foreign fat, viz., 15 and 20 per cent. respectively. I believe that in both cases the butters were imported as genuine. Some other samples of butter gave analytical results which pointed to the presence of small amounts of adulteration, but owing to the uncertainty as to the standard taken by the referees at Somerset House, I did not see my way to certify them as adulterated. Details have been published of the results of the analysis of samples of "butter" taken by the Customs from packages of imported butter, which show that it is no uncommon thing for these butters to be adulterated abroad with 5 to 25 per cent. of foreign fat. The worst offenders were exporters in Holland and Germany, as 42 and 30 per cent. respectively of the samples of "butter" from these countries were found to be adulterated.

Fines.

Twenty vendors were fined for selling adulterated butter, the average amount of the fines being £2 9s. 6d.; this is somewhat higher than last year, when the average was £2 4s. 0d

Boric Acid.

As a result of the enquiry of your Committee into the presence of boric acid in articles of food, all the samples of butter received during the second half of the year were examined for the presence of this drug; it was found in 40 butters not otherwise adulterated, as well as in most of the samples containing foreign fat. In 18 cases the vendors were cautioned by the Health Sub-Committee, but in November your Committee decided to take no further action till the opinion of three eminent medical men had been obtained as to the action of such addition of preservatives on health.

Adulterated Butter.

The following list gives particulars of the adulterated butters and of the action taken with regard to them :--

NO.	DATE.	REMARKS.
46	Jan. 17th	Consisted entirely of foreign fat. Fined £15 and £1 costs.
48	" 17th	Adulterated with 90% of foreign fat. Fined £1 and 9s. costs.
62	" 23rd	Adulterated with 75% of foreign fat. Fined £1 and 9s. costs.
65	" 23rd	Adulterated with 80% of foreign fat. Fined 10s. and 8s. costs.
66	" 23rd	Adulterated with 90% of foreign fat. Fined 10s. and 8s. costs.
68	" 23rd	Adulterated with 65% of foreign fat. Fined £1 and 9s costs.
69	" 23rd	Adulterated with 70% of foreign fat. Fined £1 and 9s costs.
89	" 31st.	Adulterated with 75% of foreign fat. Fined £3 and 9s costs.
91	" 31st	Adulterated with 80% of foreign fat. Fined £1 and 9s. costs.
113	Feb. 6th	Consisted of margarine, one part being genuine butter and the remainder containing 95% of foreign fat. Fined £5 and 9s. costs.
171	" 29th	Consisted entirely of foreign fat. Fined £2 and 9s. costs.
202	Mar. 16th	Adulterated with 85% of foreign fat. Fined £2 and 8s costs.
290	April 22nd	Adulterated with 95% of foreign fat. Fined 10s. and 8s. costs.
529	July 8th	Adulterated with about 3 grains of boric acid per pound. Cautioned by Health Sub-Committee.
540	" 8th	Adulterated with about 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.
659	Sept. 11th	Adulterated with about 15 grains of boric acid per pound. Cautioned by Health Sub-Committee.
660	" 11th	Adulterated with about 25 grains of boric acid per pound. Cautioned by Health Sub-Committee.
680	" 16th	Adulterated with 20% of foreign fat. Fined £1 and 9s. costs.
685	" 16th	Adulterated with about 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.
686	" 16th	Adulterated with about 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.
688	" 16th	Adulterated with 80% of foreign fat and 8½ grains of boric acid per pound. Summons withdrawn on the defendant proving that the wholesale dealer delivered the wrong parcel to him.
705	" 19th	Adulterated with about 14 grains of boric acid per pound. Cautioned by Health Sub-Committee.
726	" 24th	Adulterated with 90% of foreign fat and about 4 grains of boric acid per pound. Fined £1 and 9s. costs.
727	" 24th	Adulterated with about 9 grains of boric acid per pound Cautioned by Health Sub-Committee.
731	" 24th	Adulterated with about 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.

	NO.	DATE.	REMARKS.
Adulterated Butter—(*continued*).	732	Sept. 24th	Adulterated with about 12 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	769	Oct. 5th	Adulterated with about 7 grains of boric acid per pound. Cautioned by Health Sub-Committee
	770	,, 5th	Adulterated with about 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	773	,, 5th	Adulterated with about 18 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	774	,, 5th	Adulterated with about 6 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	809	,, 13th	Adulterated with at least 3 grains of boric acid per pound. No action.
	811	,, 13th	Adulterated with at least 13 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	817	,, 13th	Adulterated with at least 12 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	846	,, 21st	Adulterated with at least 10 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	847	,, 21st	Adulterated with at least 6 grains of boric acid per pound. Cautioned by Health Sub-Committee.
	865	,, 27th	Adulterated with boric acid. No action.
	867	,, 27th	Adulterated with 70% of foreign fat. Fined £2 and 9s. costs.
	869	,, 27th	Adulterated with boric acid. No action.
	873	,, 27th	Adulterated with boric acid. No action.
	917	Nov. 6th	Adulterated with boric acid. No action.
	978	,, 18th	Adulterated with boric acid. No action.
	987	,, 18th	Adulterated with boric acid. No action.
	1014	,, 26th	Adulterated with 65% of foreign fat. Fined £5 and 11s. costs.
	1018	,, 26th	Adulterated with boric acid. No action.
	1025	,, 26th	Adulterated with boric acid. No action.
	1026	,, 27th	Adulterated with boric acid. No action.
	1030	,, 27th	Adulterated with boric acid. No action.
	1041	Dec. 1st	Adulterated with 15% of foreign fat. Fined £1 and 10s. costs.
	1043	,, 1st	Adulterated with boric acid. No action.
	1045	,, 1st	Adulterated with boric acid. No action.
	1047	,, 1st	Adulterated with boric acid. No action.
	1067	,, 10th	Adulterated with boric acid. No action.
	1069	,, 10th	Adulterated with boric acid. No action.
	1070	,, 10th	Adulterated with boric acid. No action.
	1078	,, 10th	Adulterated with boric acid. No action.
	1082	,, 15th	Adulterated with boric acid. No action.
	1085	,, 15th	Adulterated with 80% of foreign fat. Fined £3 and 9s. costs.
	1086	,, 15th	Adulterated with boric acid. No action.
	1088	,, 15th	Adulterated with 85% of foreign fat. Fined £3 and 9s. costs.
	1117	,, 22nd	Adulterated with boric acid. No action.
	1133	,, 22nd	Adulterated with boric acid. No action.

Table D.

Samples of Butter under the Food and Drugs Acts.

Butter—(*continued*).

Years.	Birmingham.		London.	England and Wales.
	Samples per Year.	Percentage of Adulteration.	Percentage of Adulteration.	Percentage of Adulteration.
1873-81	4	17	16*	14*
1882-86	31	35	18	18
1887-91	73	26	16	13
1892-96	187	13	18†	11†
1892	119	17	26	15
1893	146	11	21	14
1894	228	14	15	10
1895	203	14	12	8
1896	238	9§	‡	‡

* 1877-81 only. † 1892-5 only. ‡ Not yet available.
§ 26 per cent. if butters adulterated with boric acid in the second half of the year are included.

Decrease in Adulteration.

Last year the percentage of adulteration of butter in Birmingham was the lowest on record, the steady fall in the amount of adulteration being probably due to the large increase in the number of samples taken, to enforcement of the the provisions of the Margarine Act as to labelling, and to the cheapness of butter. The proportion of adulterated samples here is rather lower than in London, and rather higher than in England and Wales. In the following table, four of the towns before mentioned are not given, as in them less than 150 samples of butter were analysed in the five years.

Preservatives.

Reports on Preservatives.

At the request of your Committee, particular attention has been paid this year to the addition of boric acid and other preservatives to articles of food, and on May 12th I made the following Report on the subject :—

"Boric acid is a drug of which the Pharmacopœia dose is from 5 to 30 grains; combined with sodium it forms borax, of which the dose is 5 to 40 grains. They are used medicinally for Thrush, Epilepsy, &c., and are fatal to low forms of vegetation and to insect life. For preservative purposes a mixture of the two is generally employed.

"The addition of boric acid to articles of food is a subject upon which no legal action has taken place in this country. The Local Government Board Report for 1890-91 states, 'There is no doubt that boric acid, if taken in large

Reports on Preservatives—(*continued*).

quantities, would be injurious to health, but we have not sufficient information to show whether such minute amounts as are generally added as preservatives could be regarded as having that effect, and more exact information is wanted before it can be decided whether a process which *prima facie* may be regarded as intended to prevent the loss of valuable food, must be held to be prohibited by law.' More recently Mr. Bannister, of Somerset House, in evidence before the Parliamentary Committee on Food Products Adulteration, stated that he did not consider the addition of boric acid to butter any worse than the addition of salt; but Mr. Bannister is not a medical man.

"In 1891 the Kensington Vestry submitted to certain eminent medical authorities the question, 'Is boric acid injurious to health when persistently taken in the daily food?' The following opinions were given:—Sir Andrew Clark considered that such chemical compounds may become destructive to health when taken in small doses continued over long periods, and he believed that many obscure incurable disorders are caused in this way. Sir Henry Thompson said that in full doses boric acid is an irritant to the digestive organs; but that it is doubtful if the small doses added to milk would be injurious to adults. Children, however, are much more liable to injury by such small doses. Dr. Lauder Brunton regarded the question as difficult, though boric acid is known to be a poison in large doses, and has been found injurious when added to articles of food.

"On the other hand several medical men have expressed the opinion that even large doses are harmless. It should be observed that children are the largest consumers of milk, and that they are much more affected by drugs than adults.

"I consider the addition of boric acid to milk is unjustifiable, and renders it not of the nature, substance, and quality of the article demanded, unless such addition is declared to the buyer. (1) It is unnecessary, as with cleanliness milk will keep long enough for its honest sale. (2) It may promote adulteration by enabling milk to be kept the longer, so that cream may be removed, and until it is on the verge of sourness from decomposition. (3) The addition of any drug to food is objectionable, particularly to a food such as milk, which is largely given to young children. (4) If the addition be permitted to milk, it may be also allowed to meat, fish, butter, beer, and wine, and, as a fact, boric acid and other preservatives are added to all these articles."

Reports on Preservatives—*(continued).*

On the 29th of September, in accordance with a Minute of your Committee, I made a further report to you, as follows:

"I am of opinion that children ought not to take boric acid, except under medical advice, it being a drug whose continued use it is impossible to say is free from danger. Experiments by Mattern have shown that 8 grains of boric acid administered daily to dogs made them unwell in a few days, and that they suffered from diarrhœa and other signs of disturbed digestion; even fatal results were observed in some cases. Thirty grains taken by Professor Mattern caused him violent pains in the stomach, and diarrhœa. Förster and Schlenker have shown that eight grains and upwards daily added to human diet, affects the absorption of the nutritive portions of the food; Förster is of opinion that 'even small doses of it are injurious to digestion.' It seems probable, then, that the habitual use of it in milk is one of the causes of infantile diarrhœa, more particularly as the preservative is used most in summer, when milk more easily turns sour. It is not a natural constituent of milk, and, even if not injurious and coming under the 3rd Section of the Food and Drugs Act, it imparts to it qualities which make it a compound 'not of the nature, substance, and quality of the article demanded,' which is a contravention of the 6th Section of that Act.

"One of the most dangerous points about the use of preservatives appears to me to be, that they enable milk to be sold as fresh which has actually begun to turn sour, but not enough to be readily detected by the taste, though sufficiently so to prove injurious to health, particularly to that of children. They also induce a carelessness about the thorough cleanliness of the dairy vessels.

"The only proper methods for the preservation of milk, if any are to be employed, are either refrigeration or boiling, by which nothing is introduced to alter the quality of the milk: but fresh milk will keep 24 hours without any treatment if the containing vessels are scrupulously clean."

In November, your Committee decided to obtain the opinions of three eminent medical men as to the effect of boric acid on health, and to take no further legal action with regard to the presence of boric acid in butter till such opinion had been obtained.

In the same month 27 samples of various foods were examined for the presence of boric acid, and it was detected in 20 of them; one sample of thick cream also contained salicylic acid. Particulars of these articles, and also of all the samples of butter, milk, and margarine examined for boric acid, are given below;—

Boric Acid.

Table E.—Boric Acid.

Date.	Article.	Number Examined.	Number contained Boric Acid.	Remarks.
April to December	Milk	361	30	Seven of the milks containing boric acid were otherwise adulterated, seven more were of low quality, and one was artificially coloured.
July to December	Butter	134	46	Six of the butters containing boric acid were also adulterated with foreign fat.
July to December	Margarine ...	6	6	Samples taken under the Margarine Act.
Nov. 12 ...	Bacon	6	4	
„ 13 ...	Thick Cream ...	4	3	One sample also contained salicylic acid.
„ 13 ...	Clotted Cream ...	2	2	
„ 16 ...	Ham and Tongue	3	3	
„ 16 ...	German Sausage	2	2	
„ 16 ...	Sheffield Polony	1	1	
„ 16 ...	Pickled Tongue ...	1	1	
„ 16 ...	Pickled Beef ...	1	0	
„ 16 ...	Sausage	4	2	
„ 16 ...	Pork Pie... ...	2	1	
„ 16 ...	Chicken, Ham and Tongue ...	1	1	
		528	102	

Salicylic Acid in Jam.

On November 27th I received six samples of jam: in five of them, viz., raspberry, egg plum, strawberry, apricot, and damson, salicylic acid was found, but the sample of plum and apple jam was free from this preservative.

Spirits.

Spirits.

Eighteen samples of spirits have been examined, viz., 6 of rum and 12 of Scotch whiskey. The Sale of Food and Drugs Act, 1879, requires that these spirits shall contain at least 75 per cent. of proof spirit, or not be more than 25 degrees under proof. The samples of rum were genuine, containing from 84 to 90 per cent. of proof spirit, but two of the samples of Scotch whiskey were under the proper strength, containing only 72 per cent., one had 74½ per cent., being just below the standard, while the other nine ranged from 78 per cent. to 102 per cent. of proof spirit.

Particulars of the adulterated samples of Scotch whiskey are here given:—

No.	Date.	Remarks.	
486—	June 26th ...	Adulterated with 4% of water.	Cautioned by the Health Sub-Committee.
490—	„ 26th ...	Adulterated with 4% of water.	Cautioned by the Health Sub-Committee.

Table F.—Spirits.

Spirits—(*continued*).

Years.	Birmingham.		London.	England and Wales.
	Samples per Year.	Percentage of Adulteration.	Percentage of Adulteration.	Percentage of Adulteration.
1873-81	6	54	19*	35*
1882-86	7	23	11	22
1887-91	6	13	11	19
1892-96	21	16	14†	18†
1892	24	4	19	19
1893	9	11	15	20
1894	32	25	14	18
1895	24	21	10	17
1896	18	11	‡	‡

* 1877-81 only. † 1892-5 only. ‡ Not yet available.

Small proportion taken in Birmingham.

In England and Wales spirits are the articles most largely analysed after milk and butter; 41 per cent. of the samples taken in 1895 were milk, 16 per cent. butter, and 10 per cent. spirits, while the percentages of adulteration were 11, 8, and 17 per cent. respectively, spirits showing the largest amount of adulteration of any article in common use.

In Birmingham last year less than 2 per cent. of the samples analysed were spirits, while, as far as can be judged from the small number of samples, the proportion of adulteration is between those of milk and butter. In the first nine years given in the table I found that half the samples analysed (chiefly gin) were adulterated with water; the last five years show a great improvement, but are slightly worse than the previous period; the number of samples, however, is too small to warrant any very decided conclusion.

Coffee.

Coffee.

Five of the 53 samples of coffee were adulterated with chicory, the quantities of the adulterant varying from 18 to 75 per cent. Three samples contained traces only of chicory, and in one of them a little flour was also detected. The quantities of impurity, however, were so small that I regarded their presence as accidental.

Table G.—Coffee.

Years.	Birmingham.		London.	England and Wales.
	Samples per year.	Percentage of Adulteration.	Percentage of Adulteration.	Percentage of Adulteration.
1873-81	10	14	15*	19*
1882-86	18	43	16	18
1887-91	23	37	12	15
1892-96	55	6	11†	12†
1892	36	0	11	15
1893	40	0	11	12
1894	57	7	9	10
1895	90	9	13	10
1896	53	9	‡	‡

* 1877-81 only. † 1892-95 only. ‡ Not yet available.

Coffee—(*continued*).

It will be seen that about one out of every ten samples analysed in England and Wales, or London, contained fraudulent addition of chicory, and that in Birmingham the proportion now is rather less, and much better than ten years ago, when about half the samples of Coffee bought for analysis were adulterated with chicory.

The following list gives particulars of the adulterated samples:—

NO.	DATE.	REMARKS.	
90	Jan. 31st	Adulterated with 60% of chicory.	Fined £3 and 9s. costs.
92	„ 31st	Adulterated with 55% of chicory.	Ordered to pay 6s. costs,
97	„ 31st	Adulterated with 40% of chicory.	Fined £5 and 9s. costs.
845	Oct. 21st	Adulterated with 75% of chicory	Fined 5s. and 8s. costs
868	„ 27th	Adulterated with 18% of chicory.	Fined £2 and 9s. costs.

Confectionery.

Confectionery.

Of the 35 samples of sugar confectionery received during the year 16, or 46 per cent., contained paraffin wax, an adulterant which has not been present since 1889.

Chocolate Chumps.

Chocolate Chumps.—The thirteen samples called by this name were found to contain no chocolate, but to be coated with paraffin wax, coloured to look something like chocolate. As paraffin wax is a most insoluble substance and quite indigestible, it is liable to accumulate in the body and produce irritation, and even fatal results; I therefore certified these articles as injurious to the health of the consumer. This position was strengthened by the fact that recently, at an inquest in a neighbouring district on the death of a child, the Coroner's jury returned a verdict of "Death from peritonitis, probably caused by paraffin in chocolate chumps."

NO.	DATE.	REMARKS.	
625	Sept. 1st	Adulterated with 4% of paraffin wax.	Cautioned by Health Sub-Committee.
626	„ 1st	Adulterated with 2½% of paraffin wax.	Cautioned by Health Sub-Committee.
627	„ 1st	Adulterated with 3% of paraffin wax.	Cautioned by Health Sub-Committee.
628	„ 1st	Adulterated with 3% of paraffin wax.	Cautioned by Health Sub-Committee.
629	„ 1st	Adulterated with 3% of paraffin wax.	Cautioned by Health Sub-Committee.
630	„ 1st	Adulterated with 3½% of paraffin wax.	Cautioned by Health Sub-Committee.
631	„ 1st	Adulterated with 3½% of paraffin wax.	Cautioned by Health Sub Committee.
632	„ 1st	Adulterated with 3½% of paraffin wax.	Fined £2 and 8s. costs.
633	„ 1st	Adulterated with 5½% of paraffin wax.	Fined £2 and 8s. costs.
634	„ 1st	Adulterated with 3% of paraffin wax.	Fined £2 and 8s. costs.
766	Oct. 3rd	Adulterated with 2½% of paraffin wax.	Ordered to pay 6s. costs.
768	„ 3rd	Adulterated with 2½% of paraffin wax.	Fined £5 and 8s. costs
848	„ 21st	Adulterated with 4% of paraffin wax.	Fined 10s. and 8s' costs.

Coco-nut Chumps, Woodbine Cigarettes.—The three samples analysed were found to be coated with paraffin wax, and were certified to be injurious to health. Coco-nut Chumps, Woodbine Cigarettes.

NO.	DATE.	ARTICLES.	REMARKS.
765	Oct. 3rd	Coco-nut Chumps ...	Adulterated with 4½% of paraffin wax. Fined £5 and 8s. costs.
767	„ 3rd	Woodbine Cigarettes ...	Adulterated with 6% of paraffin wax. Cautioned by Health Sub-Committee.
777	„ 5th	Woodbine Cigarettes ...	Adulterated with 5½% of paraffin wax. Fined £2 and 8s. costs.

Pepper.

The 26 samples of white pepper were found to be genuine; all the samples in the previous year were also free from adulteration. The following table shows that the percentage of peppers condemned in the country generally is much lower than a few years ago, and that now pepper is very rarely adulterated. Pepper.

Table H.—Pepper.

Years.	Birmingham.		London.	England and Wales.
	Samples per Year.	Percentage of Adulteration.	Percentage of Adulteration.	Percentage of Adulteration.
1873-81	9	12	*	*
1882-86	52	17	*	*
1887-91	38	22	10·3	7·5
1892-96	44	4	†1·8	†1·1
1892	38	3	3·1	1·8
1893	40	13	2·1	1·6
1894	48	4	0·6	0·6
1895	67	0	1·7	0·5
1896	26	0	*	*

* Not available. † 1892-5 only.

Other Articles of Food and Drink.

Bread.—The 21 samples examined all proved to be genuine. This is in accordance with my usual experience, as only two samples out of the large number analysed during the last 15 years have contained alum, and these two breads contained only very small amounts of it. During 1895, 1·7 per cent. of the samples examined in England and Wales were adulterated—a proportion which is somewhat above the average. Bread.

Flour.—All the samples of flour received during the last 24 years, including the 72 samples examined last year, have been found to be free from adulteration. In the whole of England and Wales, during the five years 1891-5, only two samples of flour were condemned. Flour.

Ale, Beer.

Ale, Beer.—The 12 samples contained from 16 to 70 grains of salt per gallon, but no other preservatives were detected. As any saccharine material and any bitter may be legally used for preparing these beverages, the fact that they are passed as genuine does not mean that they are of good quality, or prepared only from malt and hops. Two per cent. of the samples examined in England and Wales during 1895 were condemned, chiefly from the presence of an excess of salt.

Sugar, &c.

Twenty-seven samples of *granulated* and 12 of *Demerara sugar*, 13 of *olive oil*, 12 of *vinegar*, 4 each of *lard* and *oatmeal*, and 1 of *pickling salt*, all proved to be genuine.

Drugs.

Drugs.

Sixty-seven samples of drugs were received during the year; of these 16, or 24 per cent., were defective; this is about the usual proportion of adulteration in samples purchased for analysis in Birmingham. The majority of the vendors were cautioned by the Health Sub-Committee. Eight of the 40 samples bought from persons whose names are on the official register of chemists and druggists were condemned, and eight out of 27 of those bought from persons not on the register were defective.

Table J.—Drugs.

Years.	Birmingham.			London.		England & Wales.	
	Samples per Year.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.	Persons per Sample.	Percentage of Adulteration.
1873-76	6	46925	39	32305*	6*	97481*	19*
1877-81	6	69487	21	30514	11	52641	22
1882-86	15	26962	29	39284	8	66813	14
1887-91	89	4786	15	20905	7	46996	13
1892-96	103	4761	24	17933†	6†	29838†	13†
1892	127	3807	27	24901	16	41887	20
1893	100	4879	27	18337	5	39590	11
1894	148	3326	20	22071	4	26936	11
1895	75	6623	23	12123	4	21122	11
1896	67	7481	24	‡	‡	‡	‡

* 1876 only. † 1892-5 only. ‡ Not yet available.

From the above table it will be seen that the number of Drugs taken last year was below the average, but yet the proportion was larger than that of London or England and Wales, for while in Birmingham one sample was bought for every 7,481 persons, in London the proportion for 1895 was one for 12,123, and for England and Wales one for 21,122 of the population.

Drugs - (*continued*).

The percentage of adulteration in the last period given in the table is about twice as great in Birmingham as in England and Wales, and about four times as high as in London. It would be difficult to account for this great difference if the articles analysed were of the same nature in each case, but the 1875 Act defines "Drug" as "medicines for internal or external use," and, therefore, very many substances of different natures are included, some of which are much more liable to be adulterated than others. In Birmingham some articles, notably ipecacuanha wine, which I believe are rarely analysed elsewhere, have proved to be frequently adulterated. The last two reports of the Local Government Board stated that in England and Wales spirit of nitrous ether, tincture of rhubarb, and sulphur were the drugs most commonly adulterated, 21 per cent. of them being condemned. The proportion adulterated in Birmingham for the same years was also 21 per cent., showing that with regard to these drugs this City is not worse than the country as a whole. It may be noted that the year in which most samples were analysed in Birmingham (1894) was the year in which the percentage of adulteration was lowest.

Compound Tincture of Benzoin.

Compound Tincture of Benzoin.—Two of the 13 samples were weak, being deficient of 25 and 15 per cent. of the proper amount of solid ingredients. Last year showed a great improvement on the figures for 1890, when the first samples of this drug were taken in Birmingham. In that year three samples out of 13 contained less than half of the solid matter that should have been present.

NO.	DATE.	REMARKS.
510	July 1st	Deficient of 25 % of solid ingredients. Ordered to pay 6s. costs.
614	Aug. 28th	Deficient of 15 % solid ingredients. Not proceeded with.

Ipecacuanha Wine.

Ipecacuanha Wine.—The British Pharmacopœia orders strong sherry "containing about 17 per cent. of alcohol" to be used for making this preparation, but in five of the eleven samples received only 12 to 15 per cent. of alcohol was present, showing that the wine used for making them was considerably weaker than the official requirements. The keeping qualities of ipecacuanha wine are not altogether satisfactory, and I found small quantities of salicylic acid had been added to five of the samples to preserve them. As the Pharmacopœia does not sanction this addition, and as I regard the undeclared addition of preservatives to drugs as well as to food to be a most objectionable practice, I had no option but to certify them as adulterated. The addition of salicylic acid is no doubt intended to compensate for the deficiency of alcohol, which is the proper, but much more expensive preservative.

NO.	DATE.	REMARKS.
598	Aug. 18th	Adulterated with 28 grains of salicylic acid per gallon, and contained only 15% of alcohol. Cautioned by Health Sub-Committee.
600	,, 18th	Adulterated with 7 grains of salicylic acid per gallon, and contained only 13% of alcohol. Cautioned by Health Sub-Committee.

	NO.	DATE.	REMARKS.
Ipecacuanha Wine—(*continued*).	602—	Aug. 18th—	Adulterated with 3 grains of salicylic acid per gallon, and contained only 13% of alcohol. Cautioned by Health Sub-Committee.
	605—	„ 25th—	Adulterated with 4 grains of salicylic acid per gallon. Cautioned by Health Sub-Committee.
	606—	„ 25th—	Contained only 12% of alcohol. Cautioned by Health Sub-Committee.
	607—	„ 25th—	Contained only 13% of alcohol. Cautioned by Health Sub-Committee.
	610—	„ 25th—	Adulterated with 4 grains of salicylic acid per gallon Cautioned by Health Sub-Committee.

Spirit of Nitrous Ether.

Spirit of Nitrous Ether.—Of the seven samples examined, six were genuine, but No. 353, received on May 12th, contained 20 per cent. of ethyl nitrite in excess of the maximum Pharmacopœia requirement. The vendor was cautioned by the Health Sub-Committee. In the previous four years 26 per cent. of the samples analysed were condemned. In England and Wales 32 per cent. of the samples examined during 1895 were reported to be defective.

Quinine Wine.

Quinine Wine.—Sample No. 151, received February 20th, was deficient of 30 per cent. of the proper amount of sulphate of quinine. The vendor was cautioned by the Health Sub-Committee. The other five samples contained the proper amount of quinine.

Spirit of Ether.

Spirit of Ether.—Six samples were examined, and five were found to be of the proper strength or nearly so. No. 260 was deficient of at least 20 per cent. of ether, and the vendor was cautioned by the Health Sub-Committee. This sample was received on April 18th.

Spirit of Camphor.

Spirit of Camphor.—One sample, No. 259, contained 40 per cent. of camphor in excess of the quantity ordered by the British Pharmacopœia, showing great carelessness in its preparation. The vendor was cautioned by the Health Sub-Committee. The other five samples bought on the same day, April 18th, contained about the correct proportion of camphor.

Tincture of Rhubarb.

Tincture of Rhubarb.—The six samples received last year were all found to be genuine, while 19 per cent. of those examined in the previous four years were defective. In England and Wales, 17 per cent. were condemned in 1897.

Linseed Meal.

Linseed Meal.—One sample, No. 337, out of the five received on May 5th was adulterated, 10 per cent. of starch being present. The vendor was cautioned by the Health Sub-Committee. In the previous four years, 21 per cent. of the samples received were adulterated with starch.

Tincture of Iodine.—Two samples were genuine and two contained an excess of iodine; in one case 74 per cent. more was present than is ordered by the British Pharmacopœia. This is most unsatisfactory, as there is no difficulty in preparing this tincture. In 1895 seven samples were condemned out of the fourteen received. Tincture of Iodine.

NO.	DATE.	REMARKS.
617—	August 28th....	Contained 74 % of iodine and 17 % of iodide of potassium in excess. Ordered to pay 6s. costs.
621—	" " ...	Contained 30 % of iodine in excess, and was deficient of 30 % of iodide of potassium. Cautioned by Health Sub-Committee.

Tincture of Hop.—Two of the three samples received did not contain quite enough spirit, but the deficiency was not enough to be called adulteration. Tincture of Hop.

Legal Proceedings.

Your Committee cautioned 79 vendors, and prosecuted 85 others, for offences under the Sale of Food and Drugs Acts. Of these, 39 cautions were given and two prosecutions instituted because of the presence of boric acid in samples of milk and butter. In 75 cases fines of from 1s. to £20 were inflicted by the magistrates, eight persons were ordered to pay the costs of the prosecution, one vendor absconded, and one summons was withdrawn on the vendor proving that the wholesale dealer had delivered the wrong parcel of butter to him. Legal Proceedings.

Last year shows a decided increase both in the amount of the fines and in the average fine, which is now somewhat above that of England and Wales as a whole.

Table K.—Legal Proceedings under the Food and Drugs Acts.

Years.	Number per Annum in Birmingham.												England and Wales.		
	Adulterated Samples.	Cautions.	Prosecutions.	Amount of Fines.			Amount of Costs.			Average Fine.			Average Fine.		
				£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1873-76	39	2	13	8	16	3		‡		0	16	1		‡	
1877-81	45	3	18	22	19	0		‡		1	8	4		‡	
1882-86	100	31	35	30	7	1		‡		1	0	0		‡	
1887-91	107	24	33	51	15	5		‡		1	15	11	1	8	8
1892-96	129	39	68	98	7	4		‡		1	12	9	1	16	4§
1892	134	50	53	44	17	0		‡		0	19	6	1	16	2
1893	132	49	49	51	8	0	21	13	0	1	4	6	1	17	11
1894	124	27	68	120	6	0	29	4	0	1	18	10	1	15	7
1895	130	31	86	124	18	6	41	6	6	1	12	5	1	15	9
1896	125*	40	83	150	7	0	39	8	0	2	1	2		‡	
	213†	79	85	150	18	0	40	4	0	2	0	3		‡	

* Samples of food adulterated with preservatives only not included.
† All samples included. ‡ Not available. § 1892-95 only.

II.—MARGARINE ACT.

Margarine Act.

The Margarine Act, 1887, among other things enacted that "Every package, whether open or closed, and containing margarine, shall be branded or durably marked 'Margarine' on the top, bottom, and sides, in printed capital letters, not less than three-quarters of an inch square; and if such margarine be exposed for sale, by retail, there shall be attached to each parcel thereof so exposed, and in such a manner as to be clearly visible to the purchaser, a label marked in printed capital letters not less than one and a half inches square, 'Margarine'; and every person selling margarine by retail, save in a package duly branded or durably marked as aforesaid, shall in every case deliver the same to the purchaser in or with a paper wrapper, on which shall be printed in capital letters, not less than a quarter of an inch square, 'Margarine.'"

Table L.—Margarine Act.

Year.	Samples not labelled.	Cautions.	Prosecutions.	Amount of Fines.	Average Fine.
				£ s. d.	£ s. d.
1889	1	0	1	1 0 0	1 0 0
1890	2	1	1	0 5 0	0 5 0
1891	4	0	4	5 10 0	1 7 6
1892	2	1	1	...	...
1895	1	0	0	...	...
1896	20	4	16	59 0 0*	3 13 9

* The costs of the prosecutions were £6 12s. 0d.

It will be observed that this year there was a great increase in the number of samples taken, and in the average amount of the fines; in three cases fines of £10 being inflicted.

Below is given a list of the samples of margarine taken:—

NO.	DATE.	REMARKS.
85—	Jan. 24th	Cautioned by Health Sub-Committee.
86—	" 24th	Cautioned by Health Sub-Committee.
87—	" 24th	Cautioned by Health Sub-Committee.
88—	" 24th	Cautioned by Health Sub-Committee.
230—	April 9th	Fined £10 and 8s. costs.
231—	" 9th	Fined £10 and 8s. costs.
232—	" 9th	Fined £10 and 8s. costs.
234—	" 9th	Fined £5 and 8s. costs.
246—	" 16th	Fined £5 and 8s. costs.
247—	" 16th	Fined 10s. and 8s. costs.
248—	" 16th	Fined 10s. and 8s. costs.
339—	May 8th	Fined £2 and 8s. costs.
340	8th	Fined £2 and 8s. costs.

NO.	DATE.				REMARKS.	
406	June 3rd	...	...	...	Fined £5 and 9s. costs.	Margarine Act— (*continued*).
528	July 3rd	...	...	...	Fined £2 and 9s. costs.	
918	Nov. 6th	...	...	...	Fined £2 and 8s. costs.	
919	„ 6th	...	...	...	Fined £2 and 8s. costs.	
1024	„ 26th	...	...	...	Fined £1 and 8s. costs.	
1061	Dec. 4th	...	...	...	Fined £1 and 9s. costs.	
1089	„ 15th	...	...	...	Fined £1 and 9s. costs.	

I remain,

Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D., F.I.C.,

City Analyst.

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